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ABSTRACT

This teacher's guide is designed for use by consumer and homemaking education teachers in classes emphasizing nutrition. The guide is organized into 19 topics and is based on the 7 Dietary Guidelines for Americans: (1) to eat a variety of food; (2) to maintain ideal weight; (3) to avoid too much fat; (4) to eat foods with adequate starch and fiber; (5) to avoid too much sugar; (6) to avoid too much sodium; and (7) to drink alcoholic beverages, if one chooses to do so, only in moderation. Objectives, resources, and key words are listed at the beginning of each topic. The introductions to the topic include interesting activities to be used to increase students' desire to learn. Suggested activities provide the teachers with teaching strategies to help students achieve the objectives. Teaching aids include transparency masters, handouts, information sheets, games, and skits for use with the suggested activities. The teaching aids may be reproduced as needed for classroom use. Answer keys for student activities are provided. Nutrition tests include objective test items based on information and objectives for each topic with answer keys. Media resources sections include lists and locations of videotapes and filmstrip/cassettes that are commercially available. (KC)

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# THE NEW NUTRITION:
## Teacher's Guide

**Developed By:**
Home Economics Instructional Materials Center
Texas Tech University, Box 4067
Lubbock, Texas 79409

**Directed By:**
College of Home Economics
Texas Tech University
Lubbock, Texas

**In Cooperation With:**
Texas Education Agency
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U.S. DEPARTMENT OF EDUCATION
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# INTRODUCTION

Research indicates the American diet is contributing to some of the chronic diseases that affect Americans in later life. Cutting down on calories, fat (especially animal and other saturated fats), cholesterol, sugar, and salt; and eating more whole grains, fruits, and vegetables are positive steps toward reducing heart disease, some cancers, and strokes.

**SEVEN DIETARY GUIDELINES FOR AMERICANS**

Seven dietary guidelines for Americans have been developed by the U. S. Department of Health and Human Services and the U. S. Department of Agriculture (USDA) to help people make prudent dietary decisions. These dietary goals for the 1980s are:

1. Eat a Variety of Foods.
2. Maintain Ideal Weight.
3. Avoid Too Much Fat, Saturated Fat, and Cholesterol.
4. Eat Foods with Adequate Starch and Fiber.
5. Avoid Too Much Sugar.
6. Avoid Too Much Sodium.
7. If You Drink Alcohol, Do So in Moderation.

The guidelines are suggested for most Americans. They do not apply to people who need special diets because of diseases or conditions that interfere with normal nutrition. These people may require special dietary instructions from trained dietitians.

These guidelines are intended for people who are already healthy. No guidelines can guarantee health or well-being. Health depends on many things, including heredity, lifestyle, personality traits, mental health, attitudes, and environment, in addition to the diet.

Food alone cannot make you healthy. But good eating habits based on moderation and variety can keep you healthy and even improve your present health.

**DAILY FOOD GUIDE**

All of the foods we eat have been categorized into five groups. Together, these groups, named in the USDA Daily Food Guide, make up a complete diet. Four of the groups--Vegetable and Fruit, Bread and Cereal, Milk and Milk Products, Meat and Legumes--supply the nutrients the body needs, as well as all needed calories for energy. The nutrients these four groups supply are vitamins, minerals, carbohydrates, and proteins. The fifth group, Fats, Sweets, and Alcohol, provide mostly calories and little nutrients. This group's contribution to health is more limited than that of the other groups.

| Group | Source | Servings Daily |
|---|---|---|
| Vegetable and Fruit | Includes all vegetables and fruits. | Four.<br>Include one good vitamin C source each day. Frequently include deep yellow or dark green vegetables (for vitamin A) and unpeeled fruits and vegetables and those with edible seeds, such as berries (for fiber). |

| Group | Source | Servings Daily | |
|---|---|---|---|
| Bread and Cereal | Includes all products made with whole grains or enriched flour or meal–bread, biscuits, muffins, waffles, pancakes, cooked or ready-to-eat cereals, cornmeal, flour, grits, macaroni and pasta, noodles, rice, rolled oats, barley, bulgur. | Four.<br>Select only whole-grain and enriched or fortified products. Always include whole-grain bread or cereals. Check labels. | |
| Milk and Milk Products | Includes milk in any form–whole, skim, lowfat, evaporated, buttermilk, and nonfat dry. Also includes yogurt, ice cream, ice milk, and cheese, including cottage cheese. | Children under 9<br>Children 9 to 12<br>Teens<br>Adults<br>Pregnant Women<br>Nursing Mothers | 2-3 servings<br>3 servings<br>4 servings<br>2 servings<br>3-4 servings<br>4 servings |
| Meat and Legumes | Includes beef, veal lamb, pork, poultry, fish, shellfish (shrimp, oysters, crab), dry beans or peas, soybeans, lentils, eggs, seeds, nuts, peanuts, and peanut butter. | Two. | |
| Fats, Sweets, and Alcohol | Includes foods like butter, margarine, mayonnaise and other salad dressings, other fats and oils; candy, sugar, jams, jellies, syrups, sweet toppings, and other sweets; soft drinks and other highly sugared beverages; alcoholic beverages, such as wine, beer, and liquor. Also included are refined but unenriched breads, pastries, and flour products. | No Recommended Number of Servings. | |

Individuals can personalize the Guide to their individual caloric needs. How many calories an individual needs depends on how much energy is used each day. Generally, older people need fewer calories than younger people, women fewer than men, and bridge players and bookkeepers fewer than tennis players and construction workers. Persons who are overweight can cut portions from the fifth group, then, if needed, cut portion sizes from the other groups. Persons who are underweight can eat larger or additional portions from the first four groups and include some foods from the fifth group.

# MAKING THE NEW NUTRITION WORK FOR YOU

The New Nutrition is designed for use by consumer and homemaking education teachers and students in classes which include nutrition education. The teacher's and student's guides are valuable tools for classes emphasizing nutrition.

The guides is based on the seven Dietary Guidelines for Americans:

Dietary Guideline I: Eat a Variety of Food.
Dietary Guideline II: Maintain Ideal Weight.
Dietary Guideline III: Avoid Too Much Fat.
Dietary Guideline IV: Eat Foods with Adequate Starch and Fiber.
Dietary Guideline V: Avoid Too Much Sugar.
Dietary Guideline VI: Avoid Too Much Sodium.
Dietary Guideline VII: If You Choose to Drink, Do So in Moderation.

Descriptions of the organization of the Teacher's Guide and Student's Guide, and suggestions on how to use the materials are summarized below.

**ORGANIZATION OF THE TEACHER'S GUIDE**

The Teacher's Guide is organized into 19 topics based on the Seven Dietary Guidelines for Americans, and the Daily Food Guide. At the beginning of each topic, Objectives, Resources, and Key Words are listed. The Introduction suggests an interesting activity to introduce the topic. Suggested Activities provide the teacher with teaching strategies to help students achieve the objectives. Teaching Aids include transparency masters, handouts, information sheets, games, skits, etc., for use with the Suggested Activities. The Teaching Aids may be reproduced as needed for classroom use. Answer Keys for Student Activities are provided. The nutrition test, "What Do You Know About..?" includes objective test items based on information and objectives for the topic. An Answer Key for the nutrition test is also provided. Media Resources include videotapes and filmstrip/cassettes which are commercially available.

**ORGANIZATION OF THE STUDENT'S GUIDE**

The Student's Guide is designed to ensure student involvement in the learning process. The topics in the Student's Guide correspond with the topics in the Teacher's Guide. Each topic begins with Objectives and Key Words. The Student's Guide allows students to obtain and use information, answer questions, do word searches and crossword puzzles, etc. The format permits students to answer questions and make notes directly in the guide.

**USING THE MATERIALS**

The Teacher's Guide can assist consumer and homemaking education teachers in providing learning experiences for students in the classroom. The guide is presented sequentially according to the Seven Dietary Guidelines for Americans. However, the teacher may use only part of the materials presented or may present them in a different order according to student needs. The nutrition tests can be used to pretest students to determine which concepts are needed by a particular class. If most of the activities will be used in a particular class, providing each student with a Student's Guide will facilitate class instruction. If only a few of the student activities will be used, activities may be reproduced. This method will become expensive as more copies are reproduced.

# SOURCES

Brewster, Letitia, and Jacobson, Michael. *The Changing American Diet.* Washington, D. C.: Center for Science in the Public Interest, 1978.

*Food.* Washington, D. C: U. S. Department of Agriculture. Home and Garden Bulletin 228: 1980.

U. S. Department of Agriculture and U. S. Department of Health, Education, and Welfare. *Nutrition and Your Health.* Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office, 1980.

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## Dietary Guideline 1:

# EAT A VARIETY 0F FOODS

## A. Daily Food Guide

**OBJECTIVES**
When students complete this lesson, they should be able to: Name the five groups composing the Daily Food Guide. Give examples of major food sources from each of the five food groups. Describe a balanced diet. Use the Daily Food Guide in meal planning. Analyze daily meal and snack choices.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Build a Better Burger |
| Teaching Aid 2: | How a Cheeseburger Turns into Food Groups |
| Teaching Aid 3: | How a Taco Turns into Food Groups |
| Teaching Aid 4: | Balance Your Buckets |
| Teaching Aid 5: | How Much Do You Know About The Food You Eat? |
| Student Activity 1: | How a Cheeseburger Turns into Food Groups |
| Student Activity 2: | Food Group Roundup |
| Student Activity 3: | Watch Your Mouth |
| Student Activity 4: | Daily Food Guide Match-Up |
| Student Activity 5: | How Much Do You Know About The Food You Eat? |
| Student Activity 6: | Try Your Luck as Sherlock Holmes |
| Media Resource 1: | Eat Well, Be Well: Refrigerator Rice Salad |

**KEY WORDS**

| | | |
|---|---|---|
| balanced diet | Daily Food Guide | nutrients |
| nutrition | nutritious | |

**INTRODUCTION**
Learn what food groups compose the Daily Food Guide by participating in the skit in Teaching Aid 1: Build a Better Burger. The verses are read by the narrator; each food group needs one representative to hold up a sign which says, "Milk and Milk Products," "Meat and Legumes," "Vegetable and Fruit," "Bread and Cereal," or "Fats, Sweets, and Alcohol." As the skit begins, food group representatives are seated in chairs with signs concealed.

**SUGGESTED ACTIVITIES**
- Classify components of a cheeseburger into the food groups using the Daily Food Guide. View the transparency in Teaching Aid 2: How a Cheeseburger Turns into Food Groups. Complete Student Activity 1: How A Cheeseburger Turns into Food Groups. Summarize food groups represented by the cheeseburger as your teachers reveals the food groups on the transparency.
- Brainstorm to identify other food combinations which supply foods from each group in the Daily Food Guide. [NOTE TO TEACHER: Use Teaching Aid 3: How a Taco Turns into Food Groups to stimulate discussion.] Other examples included:

**Pizza**
crust - Bread/Cereal
cheese - Milk/Milk Products
sausage - Meat/Legumes
tomato sauce - Vegetable/Fruit
**Chef Salad**
lettuce, tomatoes, etc. - Vegetable/Fruit
hard-boiled eggs, turkey, ham - Meat/Legumes
cheese - Milk/Milk Products
croutons - Bread/Cereal
salad dressing - Fats/Sweets/Alcohol
**Tacos**
ground beef - Meat/Legumes
refried beans - Meat/Legumes
cheese - Milk/Milk Products
lettuce, tomato - Vegetable/Fruit
taco shell - Bread/Cereal

- Complete Student Activity 2: Food Group Roundup. Each of the scrambled words spells the name of a food pictured in the food groups of the Daily Food Guide. Unscramble the words and tell how the secret word is related to the other words.
- Keep a food journal for three days. Using Student Activity 3: Watch Your Mouth, write down everything you eat and drink. Record serving sizes. To help you evaluate your meals and snacks, use the form in Student Activity 4: Daily Food Guide Match-up.
- Create fact sheets to convey information on foods from each group. Include the following information on the fact sheets: history, variety, market form, location produced, nutritive value, and food group. Using the fact sheets, create crossword puzzles, word searches, or other word games to describe the food. See Student Activity 5: How Much Do You Know About The Food You Eat? for an example.
- View the "Eat Well, Be Well" videotape segment, Refrigerator Rice Salad to reinforce the Daily Food Guide information. Plan lab experiences using this recipe and other recipes which include foods from each food group.
- Complete Student Activity 6: Try Your Luck as Sherlock Holmes. Evaluate your daily meal and snack choices by applying guidelines from the Daily Food Guide.
- View the Mobile Balance Your Buckets (Teaching Aid 4) to summarize the food groups in the Daily Food Guide and the recommended number of servings for each group.

## Teaching Aid 1

# BUILD A BETTER BURGER

**Materials needed:**
Narrator
Five food persons
Five food signs: Milk and Milk Products (1), Meat and Legumes (1), Vegetable and Fruit (1), Bread and Cereal (1), Fats, Sweets, and Alcohol (1)

**Narrator Reads Rhymes**

All people eat.
There is no doubt!
But you should also learn
What nutritious food choices are about.
As you hear the message
Your classmates are here to share,
You'll be balancing your diet so quickly
That you'll have time to spare!
A way to balance your diet
Is to follow the Daily Food Guide.
You'll find it so easy,
And you'll be glad you tried!
The first group that is needed
In planning what to eat
Is the group that takes the name
Of Legumes and Meat!

(Meat and Legumes sign held up.)

This group has lots of members
That you will want to steal.
Try eggs, peanut butter, and
Don't forget the veal!
Milk and Milk Products
Are the second group of food.
They help you build strong bones and teeth
And make you feel so good!

(Milk and milk products sign held up.)

An apple a day keeps the doctor away
As the saying goes.
Vegetables and Fruits in the diet each day
Add sparkle to your eyes and bounce to your toes!

(Vegetable and Fruit sign held up.)

Need to increase your energy and pep?
Include Bread and Cereal
To help add some bounce
And a lift to your step!

(Bread and Cereal sign held up.)

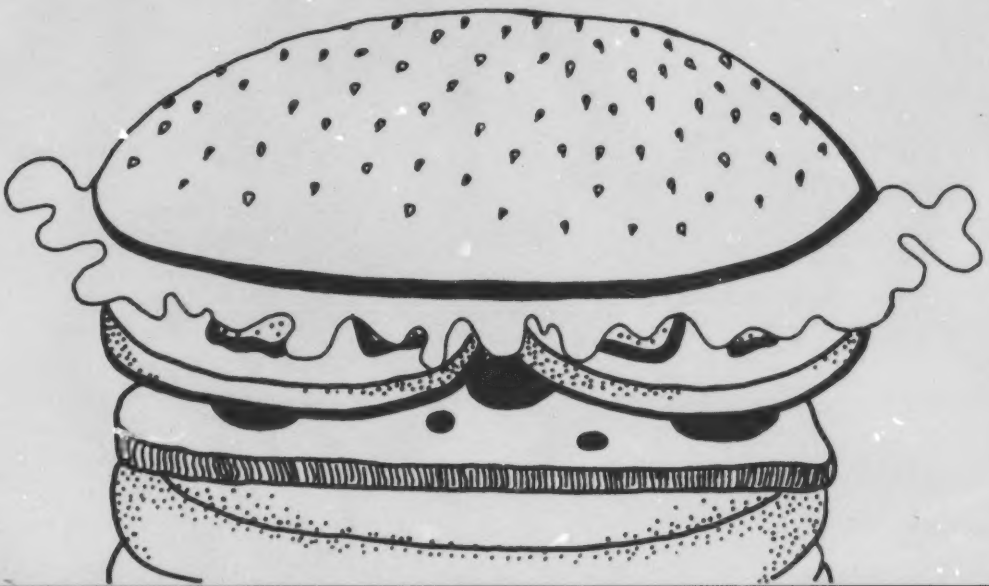
There are yummy cakes and pies
We yearn for each day.
Use few Fats, Sweets, and Alcohol
To keep extra pounds away!

(Fats, Sweets, and Alcohol sign held up)

With these facts in mind
Let's plan a meal
That includes each food group
But also has appeal!
What food that's a favorite
Have you recently tried?
Will it help to balance your diet
With groups from the Daily Food Guide?
The cheeseburger's a favorite food.
And if we plan it right
It will be packed with nutrition
In each and every bite.
The grain is in the whole-grain bun
With mayonnaise in between,
A slice of lowfat mozzarella cheese,
You can eat this on the run.
Then we'll add the lean ground beef
And maybe a tomato slice.
Top that off with the top of the bun,
And last add a glass of milk–How nice!
There isn't one mistake!
We've used all healthy foods here.
The Daily Food Guide is easy to use
To get your meals in gear!

Teaching Aid 2

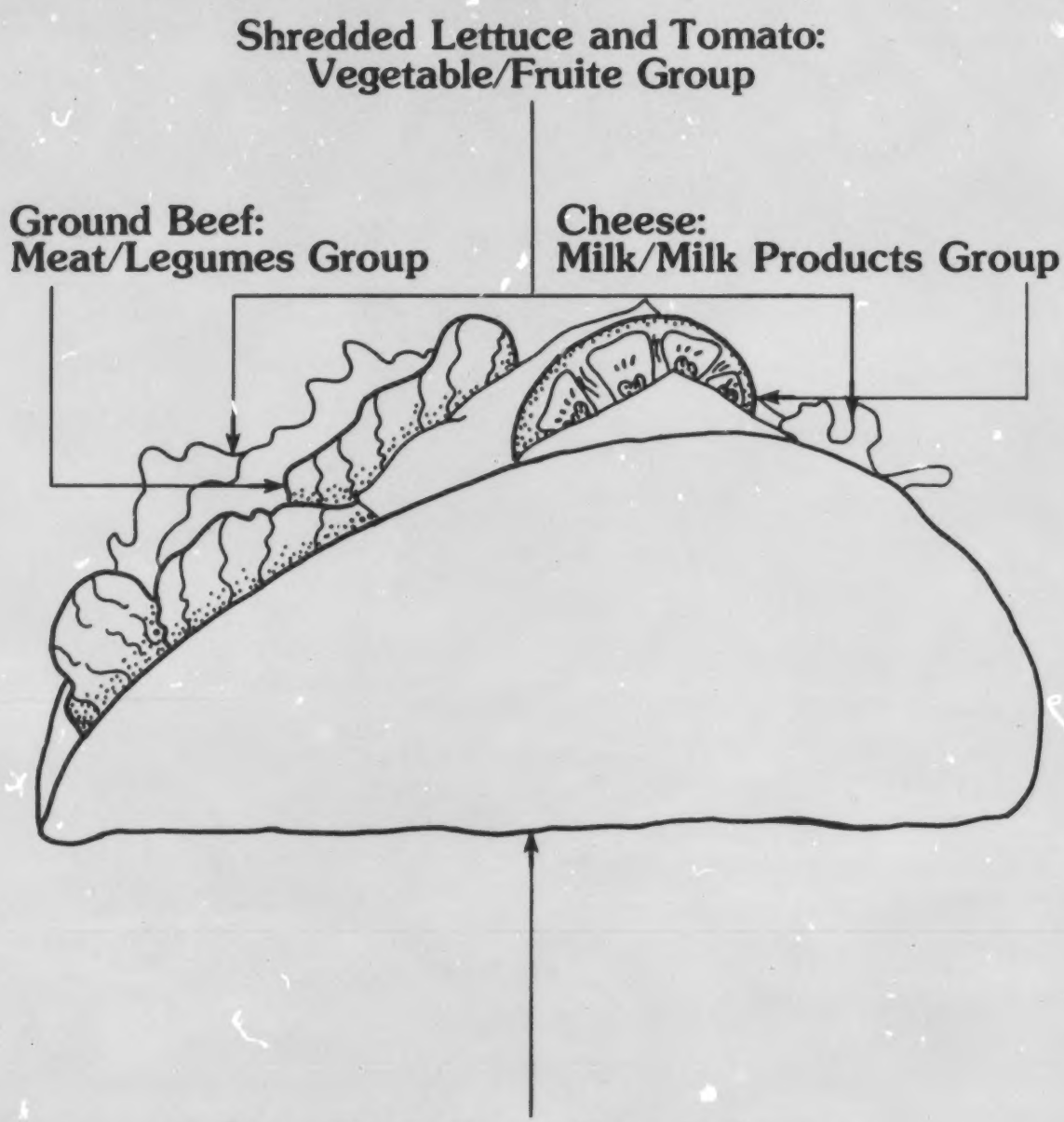
# HOW A CHEESEBURGER TURNS INTO FOOD GROUPS



| | |
|---|---|
| Whole-Grain Bun | Bread/Cereal |
| Lettuce | Vegetable/Fruit |
| Tomato | Vegetable/Fruit |
| Cheese | Milk/Milk Products |
| Meat | Meat/Legumes |
| Mayonnaise | Fats/Sweets/Alcohol |
| Bun | Bread/Cereal |

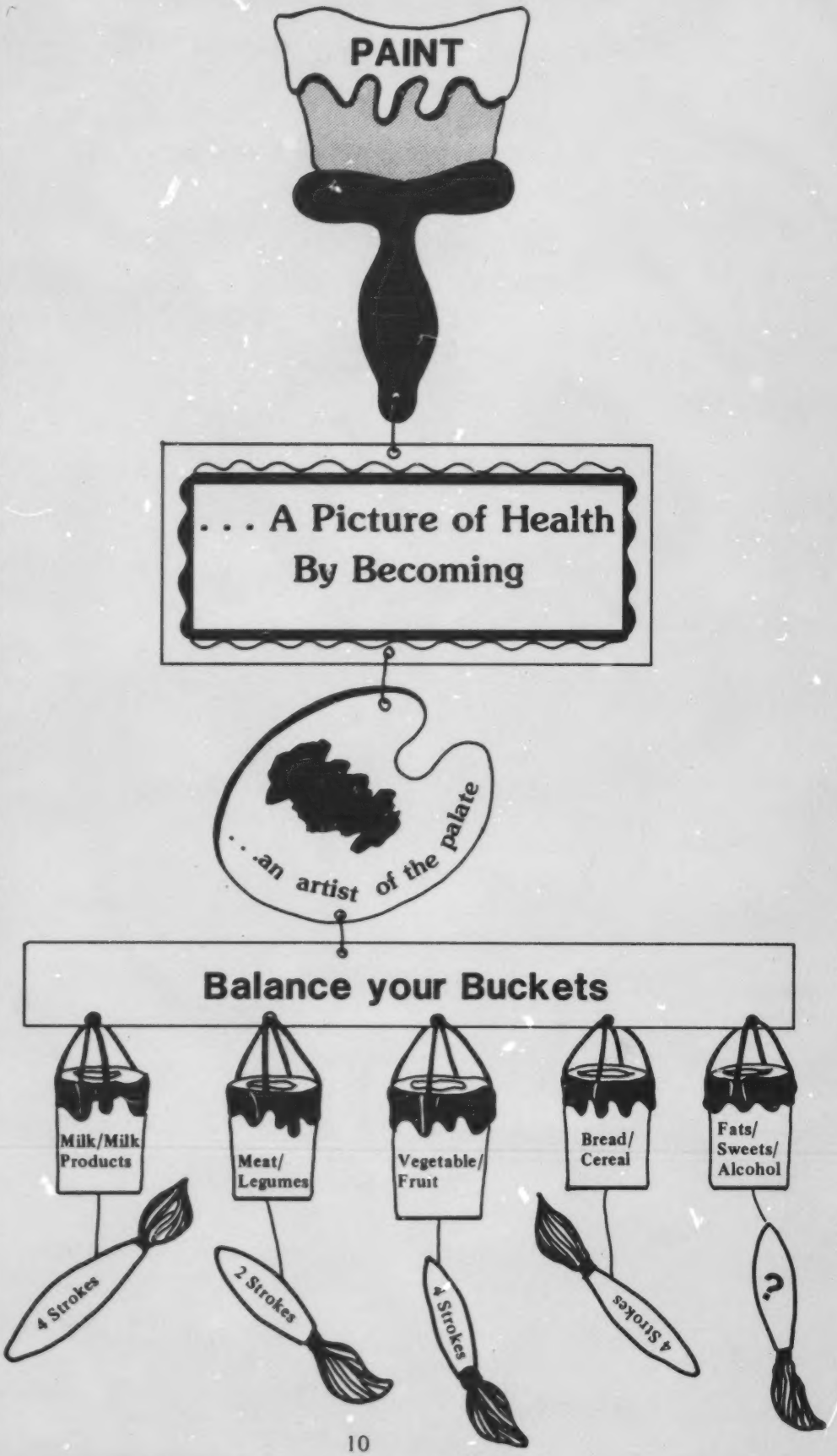
Teaching Aid 3

# HOW A TACO TURNS INTO FOOD GROUPS



Teaching Aid 4

# BALANCE YOUR BUCKETS



## Teaching Aid 5

# WHAT DO YOU KNOW ABOUT THE DAILY FOOD GUIDE ?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle the T if the statement if True. Circle the F if the statement is False.

T F 1. The Daily Food Guide is a list of food groups which indicates the number of servings you should eat from each group every day.

T F 2. Milk and milk products contain nutrients which help your body build strong bones and teeth.

T F 3. Brown rice is included in the Vegetable and Fruit Group.

T F 4. A balanced diet includes at least one serving from each of the Daily Food Guide groups at every meal.

T F 5. Fish and eggs are included in the Meat and Legumes Group.

**MULTIPLE CHOICE**

**Directions:** For Items 6-12, write the letter of the best response to each item in the blank.

_____ 6. The Daily Food Guide groups are divided according to
A. colors.
B. flavors.
C. nutrients.
D. textures.

_____ 7. A well-planned day's menu for a teenager will include this amount of milk
A. 2 6-oz. servings.
B. 2 8-oz. servings.
C. 4 6-oz. servings.
D. 4 8-oz. servings.

_____ 8. According to the Daily Food Guide, which menu supplies the most adequate nutrition?
A. Liver and onions, pinto beans, roll, and iced tea
B. Barbecued chicken, broccoli, corn bread, and milk
C. Fried fish, macaroni and cheese, biscuit, and lemonade
D. Hot dog on bun, French fries, green beans, and milk

_____ 9. Which snack has the highest nutritional value?
A. Candy bar
B. Potato chips
C. Sugar cookie
D. Peanut butter sandwich

_____ 10. Which food group supplies the best combination of energy and nutrients.
A. Meat and Legumes
B. Milk and Milk Products
C. Bread and Cereal
D. Fats, Sweets, and Alcohol

Jane ate the following foods today. Compare the menus to the Daily Food Guide and answer the following questions.

| Breakfast | Lunch | Dinner |
|---|---|---|
| Cinnamon toast | Tuna sandwich | Spaghetti with |
| Orange juice | Carrot sticks | Meat sauce |
| Coffee | Cookie | Green beans |
| | Apple | Garlic bread |
| | Milk | Milk |

_____ 11. From which group did she need more servings?
A. Meat and Legumes
B. Milk and Milk Products
C. Vegetables and Fruits
D. Bread and Cereal

_____ 12. From which group did she have more servings than needed according to the Daily Food Guide?
A. Meat and Legumes
B. Milk and Milk Products
C. Vegetable and Fruit
D. Bread and Cereal

**MATCHING**

**Directions:** For Items 13-20, match the food item with the correct food group by writing the appropriate letter in the blank. The food groups may be used one or two times.

| FOOD ITEMS | FOOD GROUPS |
|---|---|
| _____ 13. Refried beans | A. Meat/Legumes |
| _____ 14. Yogurt | B. Milk/Milk Products |
| _____ 15. Oatmeal | C. Vegetable/Fruit |
| _____ 16. Corn tortilla | D. Bread/Cereal |
| _____ 17. Bacon | E. Fats, Sweets, and Alcohol |
| _____ 18. Peanut butter | |
| _____ 19. Strawberry jam | |
| _____ 20. Pizza sauce | |

**Directions:** For Items 21-25, match the food groups with the recommended number of servings for a teenager by writing the correct letter in the blank. Some of the number of servings may be used more than once; others may not be used at all.

| FOOD GROUPS | SERVINGS |
|---|---|
| _____ 21. Meat/Legumes | A. One |
| _____ 22. Milk/Milk Products | B. Two |
| _____ 23. Vegetable/Fruit | C. Three |
| _____ 24. Bread/Cereal | D. Four |
| _____ 25. Fats, Sweets, and Alcohol | E. None |

## Answer Key Teaching Aid 5

# WHAT DO YOU KNOW ABOUT THE DAILY FOOD GUIDE ?

1. T
2. T
3. F
4. F
5. T
6. C
7. D
8. B
9. D
10. C
11. B
12. D
13. A
14. B
15. D
16. D
17. E
18. A
19. E
20. C
21. B
22. D
23. D
24. D
25. E

20

## Answer Key Student Activity 2

# FOOD GROUP ROUNDUP

**DIRECTIONS:**

1. Unscramble the food words below. Use one letter for each blank. Each unscrambled word is a nutritious food choice.
2. Find the Secret Word(s) by unscrambling the circled letters.
3. In one sentence tell how the Secret Word(s) is related to the other words.
4. At the bottom of the page, place each unscrambled word into the appropriate food group of the Daily Food Guide.

| | |
|---|---|
| 1. T S C U B I S I | (B) I S C U I T S |
| 2. H L L S I F S E H | S H E (L) L F I S H |
| 3. P L C N E A T U A O | (C) A N T A L O U P E |
| 4. S N O E L O D | N O O (D) L E S |
| 5. N C M O R A I A | M (A) C A R O N I |
| 6. E F E B | B (E) E F |
| 7. T G Y R U O | Y O G U R (T) |
| 8. N E Y S B O S A | S O Y B (E) A N S |
| 9. E P T R A S I S | P A S T R (I) E S |
| 10. G T A C T O E S C E E H E | C O T T (A) G E C H E E S E |
| 11. S N E I T G A N R E | T A (N) G E R I N E S |
| 12. D L S A A I S G N S R D E | S A L A (D) D R E S S I N G |

**SECRET WORD(S):**
B A L A N C E D D I E T

**DAILY FOOD GUIDE**

| MILK/MILK PRODUCTS | MEAT/ LEGUMES | VEGETABLE/ FRUIT | BREAD/ CEREAL | FATS/ SWEETS/ ALCOHOL |
|---|---|---|---|---|
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |

## Dietary Guideline 1:

# EAT A VARIETY OF FOODS

## B. Nutrients

**OBJECTIVES**
When students complete this lesson, they should be able to: Name the six classes of nutrients. Give examples of typical food sources of key nutrients. Explain the functions of key nutrients. Explain the functions of key nutrients. Relate nutritious food choices to the maintenance of good health. Determine nutrient deficiencies in a diet.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | How a Cheeseburger Turns Into Nutrients |
| Teaching Aid 2: | Score With Nutrition |
| Teaching Aid 3: | Nutrient Analysis Kit |
| Teaching Aid 4: | What Do You Know About Nutrients? |
| Student Activity 1: | Get Acquainted With Good Nutrition |
| Student Activity 2: | Nutrients and You |
| Student Activity 3: | How a Cheeseburger Turns Into Nutrients |
| Student Activity 4: | Can You Crack the Safe? |
| Student Activity 5: | Food Provides Nutrients |
| Media Resource 1: | Eat Well, Be Well: Refrigerator Rice Salad |
| Media Resource 2: | The Instant Energy, Sugar Coated, Fast Food Nutrition Kit. |

**KEY WORDS**

| | | |
|---|---|---|
| B vitamins | nutrients | trace elements |
| carbohydrates | phosphorus | vitamin A |
| calcium | proteins | vitamin C |
| fat | starches | vitamin D |
| iron | sugars | vitamins |
| minerals | water | |

**INTRODUCTION**
Using Student Activity 1: Get Acquainted With Good Nutrition, find classmates fitting each of the descriptions listed on the sheet. Discuss the correct answers in group discussion. Following the activity, discuss the role of nutrition in attaining and maintaining good health. [NOTE TO TEACHER: Point out the following in discussion: 1) Nutrients needed by the body are available through food. 2) Each nutrient is related to the other nutrients for proper body functioning which contributes to a healthy body. Therefore, the combination of all nutrients working as a team helps keep the body healthy. 3) Nutrients have different functions in the body and are available through different food sources. 4) To ensure that the body is receiving the right combinations of nutrients, a variety of foods should be selected from the five groups in the Daily Food Guide.]

**SUGGESTED ACTIVITIES**

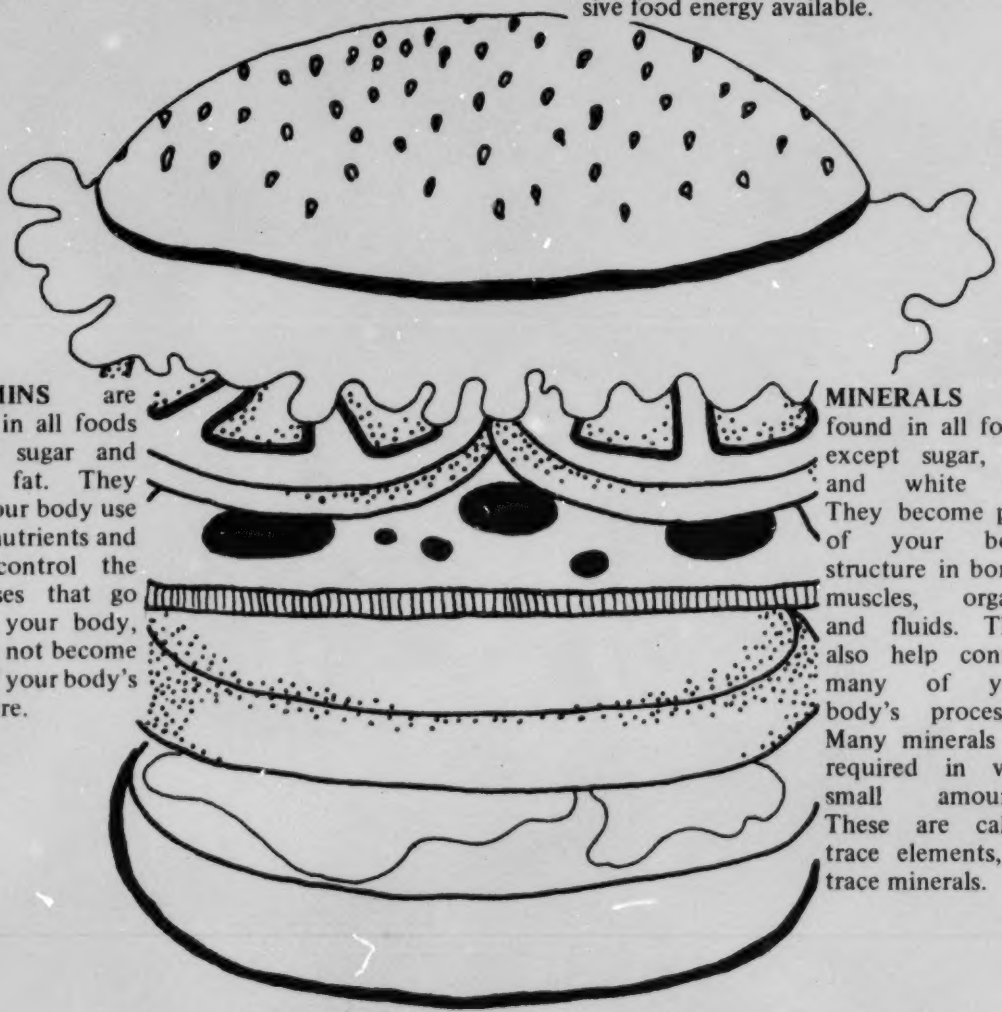
- Review Student Activity 2: Nutrients and You. Discuss how the body uses nutrients supplied by foods. [NOTE TO TEACHER: Going over the chart with the students and pronouncing the words will contribute to their understanding.]
- Make a poster to show the key nutrients supplied by the food groups. Create a collage of pictures that represent each of the Daily Food Guide food groups. Compare the significant nutrients found in the different food groups.
- Explain why each food group is important to a balanced diet. Study Teaching Aid 1: How a Cheeseburger Turns Into Nutrients, and discuss the nutrients provided by each group. Show ways the cheeseburger may be altered to make it even more nutritious.
- Classify components of the cheeseburger into nutrients using Student Activity 3: How a Cheeseburger Turns Into Nutrients.
- Find nutrition news on television, in newspapers, magazines, etc. Post information obtained on bulletin boards. Evaluate the accuracy of the nutrition information. Try to become aware of the type and amount of nutrition information and misinformation being disseminated through the media. How can you determine if a source is reliable?
- Complete Student Activity 4: Can You Crack the Safe? as a review of the nutrients, functions, and sources.
- Play the game, Teaching Aid 2: Score With Nutrition: Two teams are needed. Each team selects a coach and two referees. The referees will serve as judges with the teacher as a resource person for correct answers.
- Refer to Student Activity 3: Watch Your Mouth in Dietary Guideline I, A. Daily Food Guide. Assign major nutrient contributions to the foods eaten and the functions of the nutrients, using the chart in Student Activity 5: Food Provides Nutrients, and the "Brand Name Nutrition Counter" in The Instant Energy, Sugar Coated, Fast Food Nutrition Kit.
- Conduct lab experiments using Teaching Aid 3: Nutrient Analysis Kit to test for nutrients present in foods.
- View the "Eat Well, Be Well" videotape, Refrigerator Rice Salad. Plan a foods lab using the recipe presented or other recipes which provide a wide variety of nutrients in one dish.

## Teaching Aid 1

# HOW A CHEESEBURGER TURNS INTO NUTRIENTS

**FATS** come from animals and plants. Fats supply energy. Pound for pound, fats supply twice as much energy as proteins and carbohydrates.

**CARBOHYDRATES** come from fruits, vegetables, and grains. They are the body's main source of energy. They are widely used and are the least expensive food energy available.



**VITAMINS** are found in all foods except sugar and white fat. They help your body use other nutrients and help control the processes that go on in your body, but do not become part of your body's structure.

**MINERALS** are found in all foods except sugar, oil, and white fat. They become part of your body structure in bones, muscles, organs, and fluids. They also help control many of your body's processes. Many minerals are required in very small amounts. These are called trace elements, or trace minerals.

**PROTEINS** come from meat, poultry, fish, dairy products, nuts, and legumes. They are used by your body to build and mend cells, and to control body processes. Your body will use protein for energy if you don't eat enough carbohydrates or fats.

## Teaching Aid 2

# SCORE WITH NUTRITION

The game is designed for intermediate or advanced students. It is useful as a review of basic nutrition information gained through class discussion and student activities.

**NUMBER OF PLAYERS** Entire class

**GAME MATERIALS**

(a) Basketball court–Draw a basketball court on a large piece of paper, poster board, fabric, or chalkboard.
(b) Basketball goals–Secure two suitably sized basketball goals–paper cups, baskets, cardboard boxes, etc.–and place one on each end of the court. Designate goals for each team.
(c) Question balls–The questions are placed on 3" x 5" cards cut in the shape of basketballs divided into three groups with the following numerical values: Yellow (score double questions) –4 points; Blue (freethrow questions) –2 points, Red (single questions) –1 point.

Each category has five questions but additional questions may be needed for a larger group.

**HOW TO PLAY**

Divide students into two teams. Each team should select the following:
(a) coach
(b) two referees
(c) scorekeeper

The coach will decide what level question (color of basketball) will be chosen. The referees from each team will serve as judges, using the teacher as a resource person for correct answers as needed. The scorekeeper will keep score for his/her respective team.
Place all question balls in three separate containers labeled with the point value of the questions. The teacher establishes the time limit for solving a problem.

**RULES OF PLAY**

(a) Some means of determining which team will receive the ball first is chosen. Example: Flipping a coin, drawing straws, etc.
(b) The coach draws questions one at a time from one of the containers and reads them to the players as their turns approach. If the player answers the questions correctly, the team scores. The correctly answered question "ball" is placed in the team's basket and the score is recorded.
(c) If the question is missed, the opposing team is given a try. If that team's player answers the team which missed the question is penalized that number of points. The opposing team then receives another question and normal play continues.
(d) The game is played according to a time schedule which fits the class period and allows time for discussion.

**QUESTIONS**

RED QUESTIONS SINGLE SCORE

1. Tom has acquired a night job which requires delivering pizzas. While making his deliveries, he has trouble seeing the stop signs and road markings. Name two foods which might improve Tom's ability to see at night.
(vitamin A: carrots, sweet potatoes, spinach)

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2. Protein is needed in your body to help build and repair body cells, promote growth, and provide energy. Name two sources of complete protein teens like to eat.
(Milk, cheese, fish, beef, eggs)

3. The Daily Food Guide recommends two servings daily of one of the five food groups. Name the group and two foods from it.
(Meat/Legumes: eggs, nuts, peanut butter, chicken, pork, fish, beef)

4. You and your sister are shopping for family groceries. While at the dairy section, your sister reads the milk carton and asks you the meaning of "fortified." What would you tell her milk is fortified with, and why?
(vitamin D. Milk is naturally low in vitamin D, which is necessary to help the body absorb calcium)

5. Your uncle has been told to cut down on the amount of fat in his diet in order to lose some weight. Name two foods high in fat you would suggest he eliminate from his diet. Offer a suitable nutritious substitute that is lower in fat.
(Fried foods, margarine/butter, avocado, bacon, salad dressing)

**BLUE QUESTIONS** FREE THROW

1. To help your little brother's teeth develop correctly two minerals are needed in an adequate quantity and the correct ratio. Name the minerals and two food sources.
(Calcium and phosphorus: milk and cheese)

2. As you brush your teeth, you notice that your gums bleed easily. Name the vitamin which would help your gums stay healthy and two food sources for it.
(vitamin C: citrus fruits, cantaloupe, tomatoes)

3. Nan is responsible for family grocery shopping for the weekend. She asks you to accompany her to the store. While comparing breads, she asks you the difference between white and whole-wheat bread. What would you tell her and which would you recommend she purchase?
(White bread is made from flour which has lost most of its nutrients in the milling process; whole-wheat or whole-grain products have retained the bran and germ parts of the kernel.)

4. Water is responsible for regulating body temperature. Name two foods which contain large amounts of water.
(Fresh fruits, vegetables, milk)

5. For lunch you and your friends love to eat a hamburger, French fries, and a cola. Alter this meal in three ways to make it a more nutritious choice.
(Replace cola with milk. Substitute a salad for the French fries. Add cheese to the hamburger.)

**YELLOW QUESTIONS** DOUBLE SCORE

1. Ann feels tired and run-down. The doctor diagnosed Ann as anemic. What do you think the doctor prescribed to add to Ann's diet?
(Iron in food sources such as liver, lean meats, egg yolk, dark green leafy vegetables, dried fruits.)

2. Name three food sources high in fat-soluble vitamin content.
(Carrots, whole milk, liver, green leafy vegetables.)

3. While practicing basketball after school, your friend Jorita trips, and you grab her arm to prevent the fall. The next day you notice a bruise where you grabbed her arm. What vitamin might Jorita need in greater amounts? What can she eat to get it?
(vitamin C: citrus fruits, cabbage, strawberries, tomatoes)

4. Your friend's father has been diagnosed as having hypertension. He has been placed on a special diet. What item do you think he must now use sparingly, and why?
(Salt, because of high blood pressure.)

5. You have been scheduled to have your wisdom teeth pulled next Friday. Your dentist recommends that until that day you include food in your diet that will help your blood clot more readily. Name the vitamin needed and two foods rich in that vitamin.
(vitamin K: cauliflower, cabbage, spinach)

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## Teaching Aid 3

# NUTRITION DETECTIVE KIT

Listed below are lab experiments to test for nutrients present in foods:

**To find Starch** (complex carbohydrates)
½ teaspoon iodine solution
½ cup water
Place several drops of the solution on the food; if the solution turns purple, starch is present. Suggested foods to test: potato, rice, apple, cheese

**To find Sugar** (simple carbohydrates)
Put food in test tube. Add 1 oz. Benedict's solution. Heat. If solution changes from blue to red-orange, sugar is present. Suggested foods to test: table sugar, honey, whole milk, skim milk

**To find Protein**
Burn food on a piece of aluminum foil. The smell of burning feathers will tell you it's protein! Suggested foods to test: meat, chicken, lettuce

**To find Fats**
Rub food on a piece of brown or white wrapping paper. Let dry. Hold up to light. If the paper is greasy, fat is present. Suggested foods to test: bacon, well-marbled beef, pork, chicken, potato

**To find Minerals**
Mash any food. Burn on a piece of aluminum foil. If a gray ash remains, minerals are present. Minerals do not burn! Suggested foods to test: milk, dry beans, enriched bread

**To find Vitamin C**
2 cups water
2 tablespoons cornstarch
Boil 3 minutes and cool. Put each food to be tested in a separate cup. Add 1 drop of iodine to 1 teaspoon of mixture above, and pour in each cup. If the solution turns clear, vitamin C is present. The more drops of iodine needed to clear the solution, the less vitamin C in the fruit. Suggested foods to test: orange, strawberry, cantaloupe, apple, peach

## Teaching Aid 4

# WHAT DO YOU KNOW ABOUT NUTRIENTS?

**TRUE AND FALSE**

**Directions:** For Items 1-6, circle the T if the statement is True. Circle the F is the statement is False.

T F 1. To be sure your body is getting enough nutrients, select foods according to the Daily Food Guide.

T F 2. Carbohydrates are the body's main source of energy.

T F 3. Vitamins A, D, and C are fat-soluble vitamins.

T F 4. Trace elements are required in very small amounts for good nutrition.

T F 5. Sugars, starches, and cellulose are all forms of carbohydrates.

T F 6. Nutrients are chemical substances which help the body digest the foods you eat.

**MULTIPLE CHOICE**

**Directions:** For Items 7-13, write the letter of the best response to each item in the blank.

_____ 7. An example of a food that is *not* required to have ingredients listed on the package label is
A. corn flakes.
B. dill pickles.
C. macaroni and cheese.
D. mayonnaise.

_____ 8. Which nutrient is important in preventing anemia?
A. Calcium
B. Carbohydrates
C. Iron
D. Vitamin B complex

_____ 9. Which nutrients are necessary for body cells to work properly?
A. Carbohydrates
B. Minerals
C. Proteins
D. Vitamins

_____ 10. Which of the following is necessary for the body to make use of the nutrients that are eaten?
A. Cellulose
B. Cholestrol
C. Hormones
D. Water

_____ 11. Foods that contain few, if any, vitamins or minerals are in which food group?
A. Fats, Sweets, and Alcohol
B. Meat and Legumes
C. Milk and Milk Products
D. Vegetable and Fruit

_____ 12. Breads and cereals help the body maintain a healthy nervous system because they contain
A. calcium.
B. iron.
C. vitamin B complex.
D. vitamin C.

_____ 13. Which nutrient is necessary for the body to build and repair tissues?
A. Fat
B. Phosphorus
C. Protein
D. Riboflavin

**MATCHING**

**Directions:** For Items 14-20, match the uses of nutrients with the nutrients by writing the correct letter in the blank. Use each nutrient only once.

| USES | NUTRIENTS |
|---|---|
| _____ 14. Becomes part of structure of bones, muscles, and organs | A. Calcium |
| _____ 15. Helps build strong teeth | B. Iron |
| _____ 16. Helps fight infection | C. Trace elements |
| _____ 17. Helps build red blood cells | D. Phosphorus |
| _____ 18. Helps heal wounds | E. Riboflavin |
| _____ 19. Helps blood clot | F. Vitamin A |
| _____ 20. Promotes good eyesight | G. Vitamin C |

**Directions:** For Items 21-25, match the best sources of nutrients with the types of nutrients by writing the correct letter in the blank. Use each type only once.

| SOURCES | TYPE OF NUTRIENTS |
|---|---|
| _____ 21. Cookies, pretzels, candy, crackers | A. Carbohydrates |
| _____ 22. Milk, whole-grain bread, spinach, collard greens | B. Fats |
| _____ 23. Margarine, chocolate, potato chips, bacon | C. Minerals |
| _____ 24. Oranges, carrots, tomatoes, potatoes | D. Proteins |
| _____ 25. Eggs, steak, pinto beans, pork chops | E. Vitamins |

## Answer Key Teaching Aid 4

# WHAT DO YOU KNOW ABOUT NUTRIENTS?

1. T
2. T
3. F
4. T
5. T
6. T
7. D
8. C
9. D
10. D
11. A
12. C
13. C
14. C
15. B
16. E
17. B
18. G
19. A
20. F
21. A
22. C
23. B
24. E
25. D

## Answer Key Student Activity 1

# GET ACQUAINTED WITH GOOD NUTRITION

1. Citrus fruits, melons, berries, tomatoes
2. Promotes growth, provides energy, makes up part of every body cell, helps build and repair body cells
3. Calcium
4. Liver; lean meats; eggs; legumes; dark green, leafy vegetables; dried fruits; enriched and whole-grain breads and cereals
5. Carbohydrates, fats, proteins
6. Water
7. Chromium, selenium, copper, manganese, fluoride, etc.
8. Vitamin A
9. Milk and Milk Products; Bread and Cereal; Vegetable and Fruit; Meat and Legumes; Fats, Sweets, and Alcohol
10. Orange and dark green vegetables, yellow fruit, liver, eggs, fish, fortified milk
11. Provides concentrated energy, carries fat-soluble vitamins like A and D
12. Bread and cereals, potatoes, dry beans and peas
13. Vitamin A, carrots
14. Calcium and iron
15. Vitamin D

## Answer Key Student Activity 3

# HOW A CHEESEBURGER TURNS INTO NUTRIENTS

| PART OF CHEESEBURGER | FOOD GROUP | NUTRIENT(S) |
|---|---|---|
| 1. Bun | 1. Bread/Cereal | 1. Carbohydrates |
| 2. Lettuce | 2. Vegetable/Fruit | 2. Vitamins, minerals (small amounts) |
| 3. Tomato | 3. Vegetable/Fruit | 3. Vitamins, minerals (small amounts) |
| 4. Cheese | 4. Milk/Milk Products | 4. Minerals, vitamins, protein |
| 5. Mayonnaise | 5. Fats/Sweets/Alcohol | 5. Fats |
| 6. Hamburger Patty | 6. Meat/Legumes | 6. Protein |

## Answer Key Student Activity 4

# CAN YOU CRACK THE SAFE?

| NUTRIENT | COMBINATION |
|---|---|
| 1. C A R B O H Y D R A T E | R-1 |
| 2. F A T | L-2 |
| 3. P R O T E I N | R-5 |
| 4. V I T A M I N | L-4 |
| 5. M I N E R A L | R-3 |
| 6. W A T E R | L-6 |

## Dietary Guidelines 1:

# EAT A VARIETY OF FOODS

## C. Digestion

**OBJECTIVES**
When students complete this lesson, they should be able to: Describe the digestive process. Explain how the body uses food.

**RESOURCES**

Teaching Aid 1: How a Cheeseburger Turns Into You
Teaching Aid 2: Points to Ponder About Digestion
Teaching Aid 3: Cheeseburger Digestion
Teaching Aid 4: What Do You Know About Digestion?
Student Activity 1: How the Body Uses Food
Student Activity 2: Digestion Seek and Find
Media Resource 1: Eat Well, Be Well: Pasta Primavera

**KEY WORDS**

amino acids
bile
digestion
duodenum
enzyme
glycerol
glycogen
pancreatic juice
pepsin
peristaltic waves
esohpagus
fatty acids
fiber
gastric juice
glucose
ptyalin
saliva
satiety
villi

**INTRODUCTION**
Using a picture of an automobile or a model car, compare the human body to the automobile. List the car parts and human body parts on the chalkboard. Compare the parallels between car mechanism and body functions. Examples include:

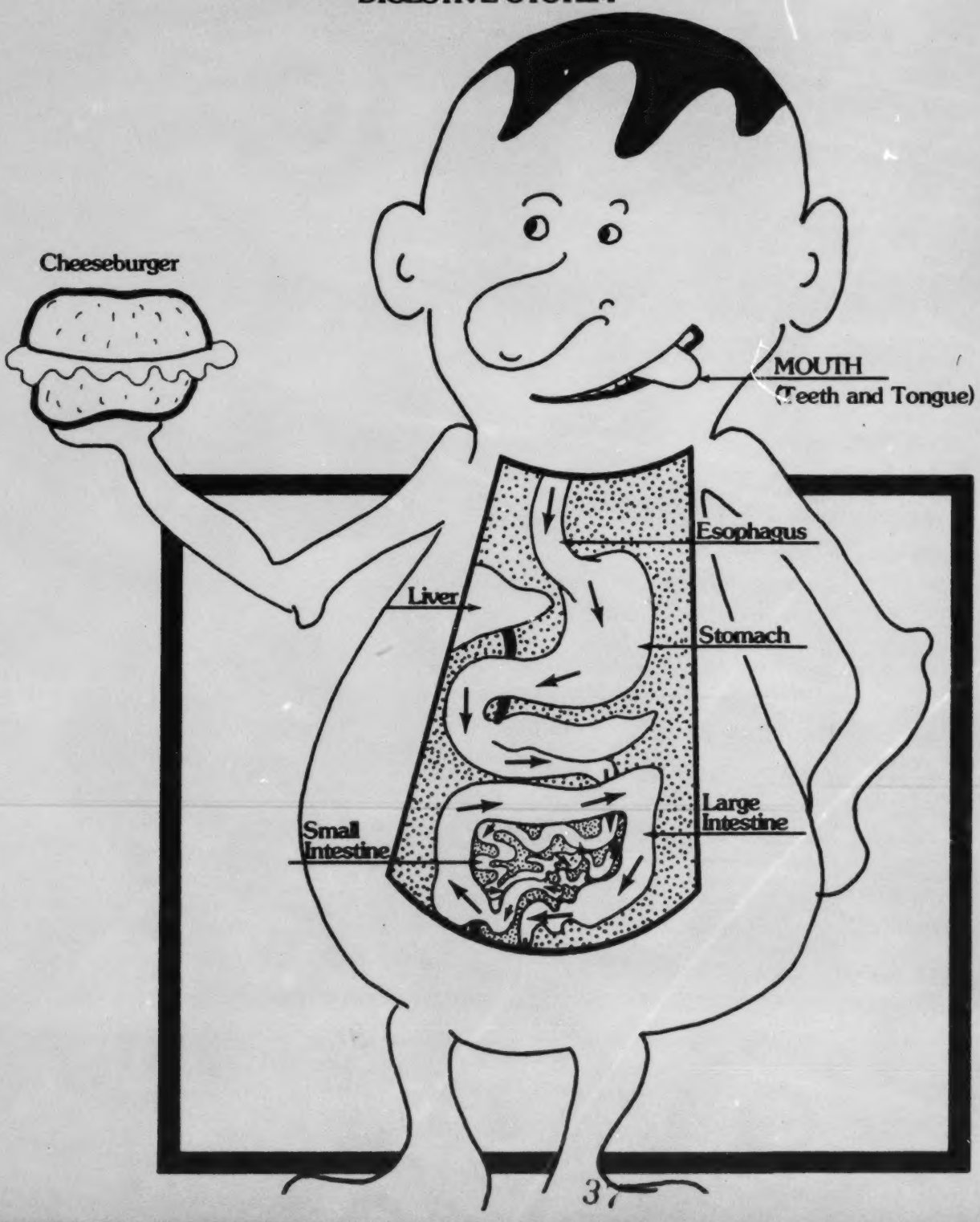
| CAR | HUMAN |
|---|---|
| carburetor | mouth |
| intake manifold | esophagus |
| gasoline | food |
| cylinders | stomach |
| pistons | small intestine |
| exhaust | large intestine |

**SUGGESTED ACTIVITIES**
- Using Teaching Aid 1: How a Cheeseburger Turns Into You, to observe that food has no nutritive value to the body until it is chemically transformed by digestion. Identify the major components of the digestive system.
- Listen to Teaching Aid 2: Points to Ponder About Digestion and Teaching Aid 3: Cheeseburger Digestion to learn about the digestive process and its significance to health. Use Student Activity 1: How the Body Uses Food to reinforce your understanding of the digestive process.

- Select a food you have eaten in the past 24 hours and explain how the body uses the food and the nutrients supplied by that food. Use illustrations to make you explanation clearer.
- Review the digestive process using Student Activity 2: Digestion Seek and Find. Explain how each of the words in the activity are used in the digestive process.

Teaching Aid 1

# HOW A CHEESEBURGER TURNS INTO YOU



## Teaching Aid 2

# POINTS TO PONDER ABOUT DIGESTION

Follow the nutrients in the cheeseburger from the first bite to the bloodstream:

**• Mouth**
Here the food is softened by saliva and crushed by the teeth into smaller pieces. The enzyme ptyalin found in saliva helps to break down complex carbohydrates (starches) into simple carbohydrates (sugars). For this reason, a starchy food, such as a saltine cracker, will taste sweet as the starch is broken down in the mouth.

**• Esophagus**
After food is swallowed, it is moved by the esophagus into the stomach. The esophagus is approximately 12 inches (30 cm) long. Peristaltic waves move food along the entire digestive tract.

**• Stomach**
Food is churned through peristaltic waves and broken down by acid gastric juices which include hydrochloric acid and the enzyme pepsin. As the stomach churns food, pepsin and hydrochloric acid work to bread down protein. Liquids are digested quickly. In contrast, solids may take approximately four hours to digest. Foods that are chewed well leave the stomach more easily than large pieces. Fats stay in the stomach the longest and provide satiety or satisfaction.

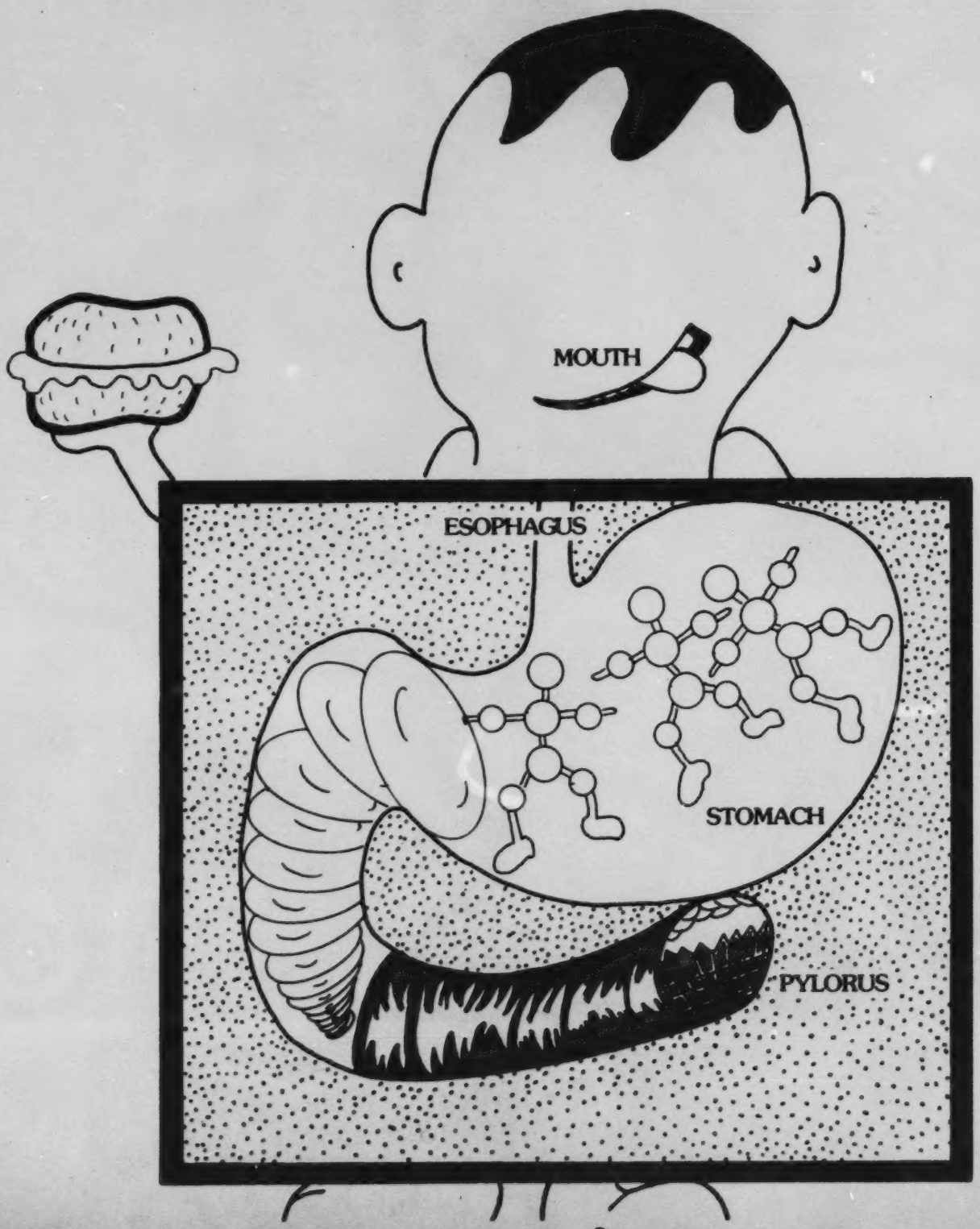
**• Small Intestine**
After leaving the stomach, food enters the upper part of the small intestine called the duodenum. Food is mixed and combined with digestive chemicals: bile from the liver, pancreatic juice from the pancreas, intestinal fluids, and enzymes. Food is broken down into nutrients the body can use:
Carbohydrates change to the simple sugar, glucose.
Fats change to fatty acids which provide energy and glycerol.
Proteins change to amino acids.
Vitamins and minerals remain basically unchanged.
The small intestine is lined with hair like projections called villi. Villi filter and absorb the materials from the small intestine. The nutrients are moved to the blood vessels and carried to the liver. Villi then help move the waste products to the large intestine.

**• Liver**
The liver manufactures, changes, and stores nutrients and chemicals needed by the body. The liver turns glucose, a simple sugar used for energy, into glycogen, a form of sugar, for storage. The liver converts glycogen to glucose and sends it to the bloodstream when the body needs energy. The liver sends nutrients to the bloodstream as the body needs them. The liver recycles iron and worn-out red blood cells from the blood.

**• Large Intestine**
Bacteria needed for digestion and formation of certain vitamins is found here. In the large intestine water is absorbed and sent to the kidneys. Fiber from food absorbs some of that water, however, and helps to soften waste so it is eliminated more easily. Waste products (bacteria, excess nutrients, and what is left of the food) are excreted. Approximately 10 percent of the food eaten ends up as waste.

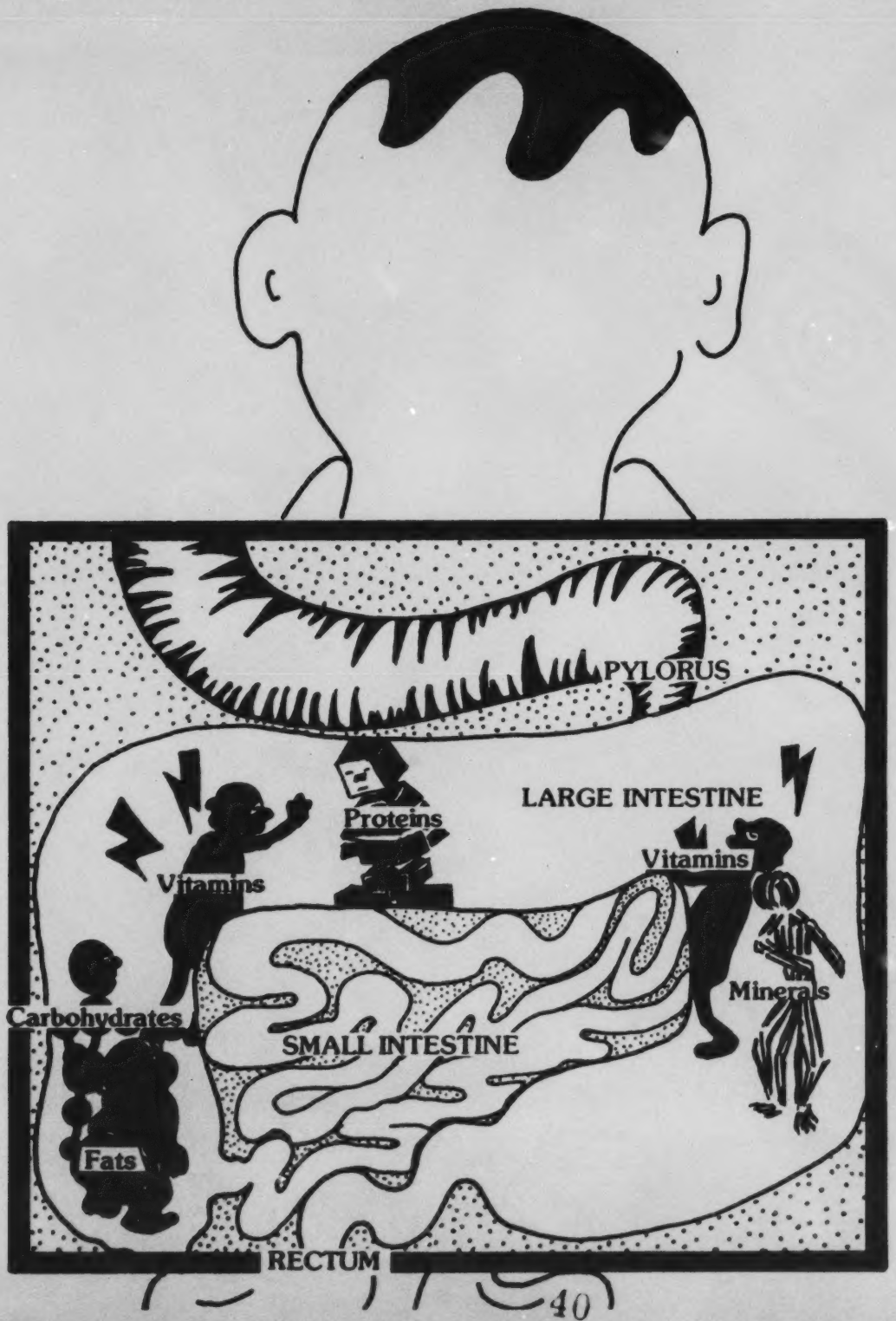
Teaching Aid 3

# CHEESEBURGER DIGESTION - MEALTIME



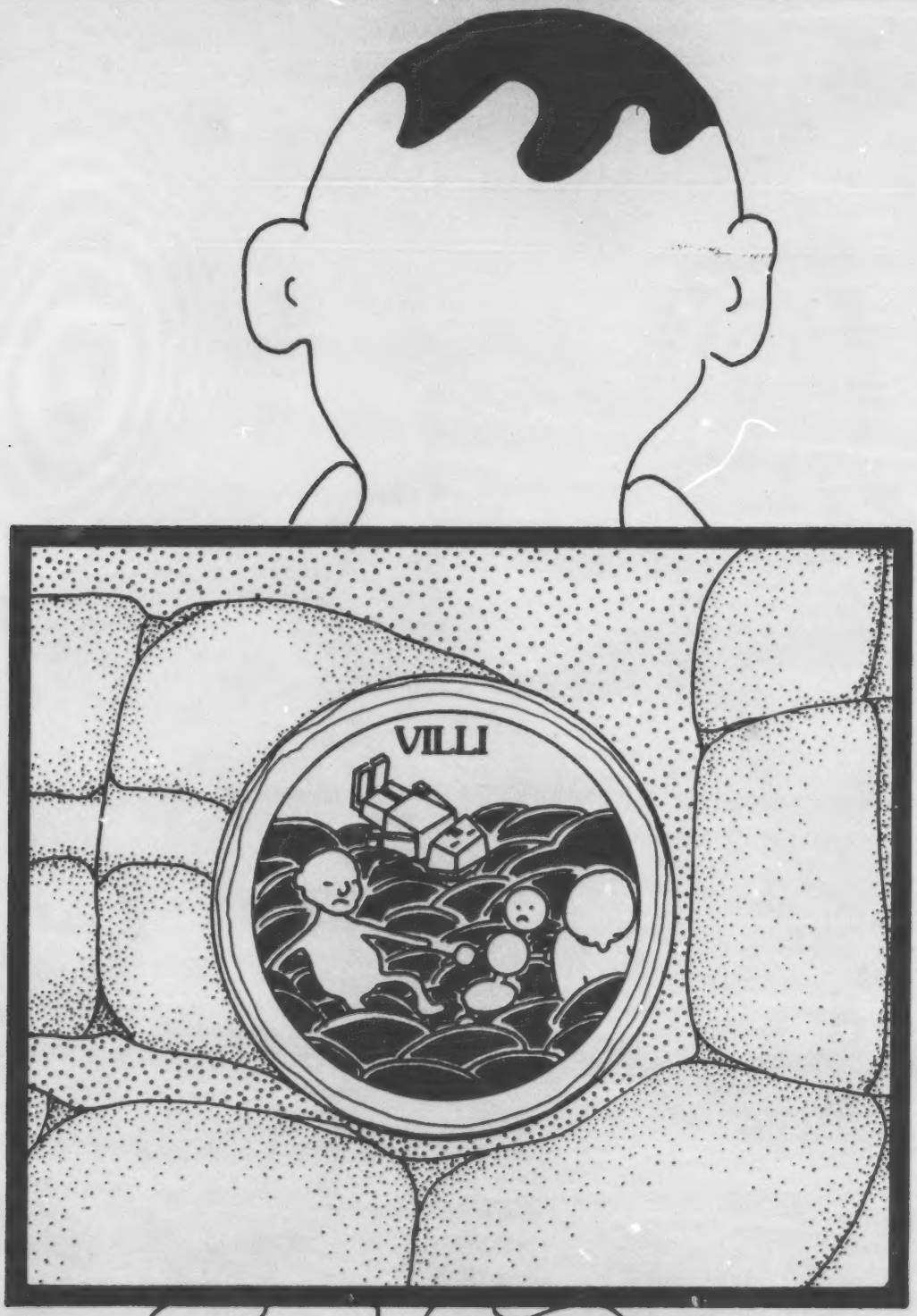
Teaching Aid 3

# CHEESEBURGER DIGESTION - SIX HOURS LATER



Teaching Aid 3

# CHEESEBURGER DIGESTION - SIX HOURS LATER



## Teaching Aid 4

# WHAT DO YOU KNOW ABOUT DIGESTION?

**TRUE OR FALSE**

**Directions:** For Items 1-5, circle T if the statement is True. Circle F if the statement is False.

T F 1. Nutrients cannot be used by your body until they have been digested.

T F 2. The digestion process begins in the esophagus after food has been chewed into small pieces and swallowed.

T F 4. The small intestine changes nutrients into chemicals and stores them until the body can use them.

T F 5. In the digestive process, fiber helps the body eliminate waste.

**MULTIPLE CHOICE**

**Directions:** For Items 6-15, select the best response to answer the question and write the letter in the blank.

_____ 6. Which nutrient provides a feeling of satiety, or satisfaction, after eating?
A. Carbohydrates
B. Fats
C. Minerals
D. Proteins

_____ 7. Nutrients are absorbed by the villi and carried to the liver from the
A. colon.
B. large intestine.
C. small intestine.
D. stomach.

_____ 8. Fibers and water absorb and soften excess nutrients, bacteria, and food in the
A. large intestine.
B. kidneys.
C. rectum.
D. small intestine.

_____ 9. The digestive process changes proteins into
A. amino acids.
B. cholestrol.
C. fatty acids.
D. glycerol.

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_____ 10. Digestive chemicals do *not* include
A. bile.
B. enzymes.
C. glycogen.
D. hydrochloric acid.

_____ 11. Food moves from the stomach into the small intestine through the
A. duodenum.
B. esophagus.
C. liver.
D. villi.

_____ 12. Sugar that is stored in the body is called
A. glucose.
B. glycerin.
C. glycogen.
D. glycerol.

_____ 13. Approximately what percent of the food you eat that is *not* used by the body?
A. five percent.
B. ten percent
C. twelve percent.
D. fifteen percent.

_____ 14. Which of the following nutrients are basically unchanged after digestion?
A. Fats and proteins
B. Proteins and carbohydrates
C. Fats and vitamins
D. Vitamins and minerals

_____ 15. Which of the following are most important in the digestion of protein?
A. Bile and pancreatic juice
B. Hydrochloric acid and bile
C. Pepsin and hydrochloric acid
D. Ptyalin and pepsin

MATCHING

**Directions**: For Items 16-20, match each term with the part of the digestive system with which it is most often associated. Some parts of the digestive system will not be used.

TERMS

_____ 16. Acid gastric juices

_____ 17. Bile

_____ 18. Intestinal juices

_____ 19. Saliva

_____ 20. Water

PARTS OF DIGESTIVE SYSTEM

A. Esophagus
B. Large intestine
C. Liver
D. Mouth
E. Pylorus
F. Rectum
G. Small intestine
H. Stomach

## Answer Key Teaching Aid 4

# WHAT DO YOU KNOW ABOUT DIGESTION?

1. T
2. F
3. T
4. F
5. T
6. B
7. C
8. A
9. A
10. C
11. A
12. C
13. B
14. D
15. C
16. H
17. C
18. G
19. D
20. B

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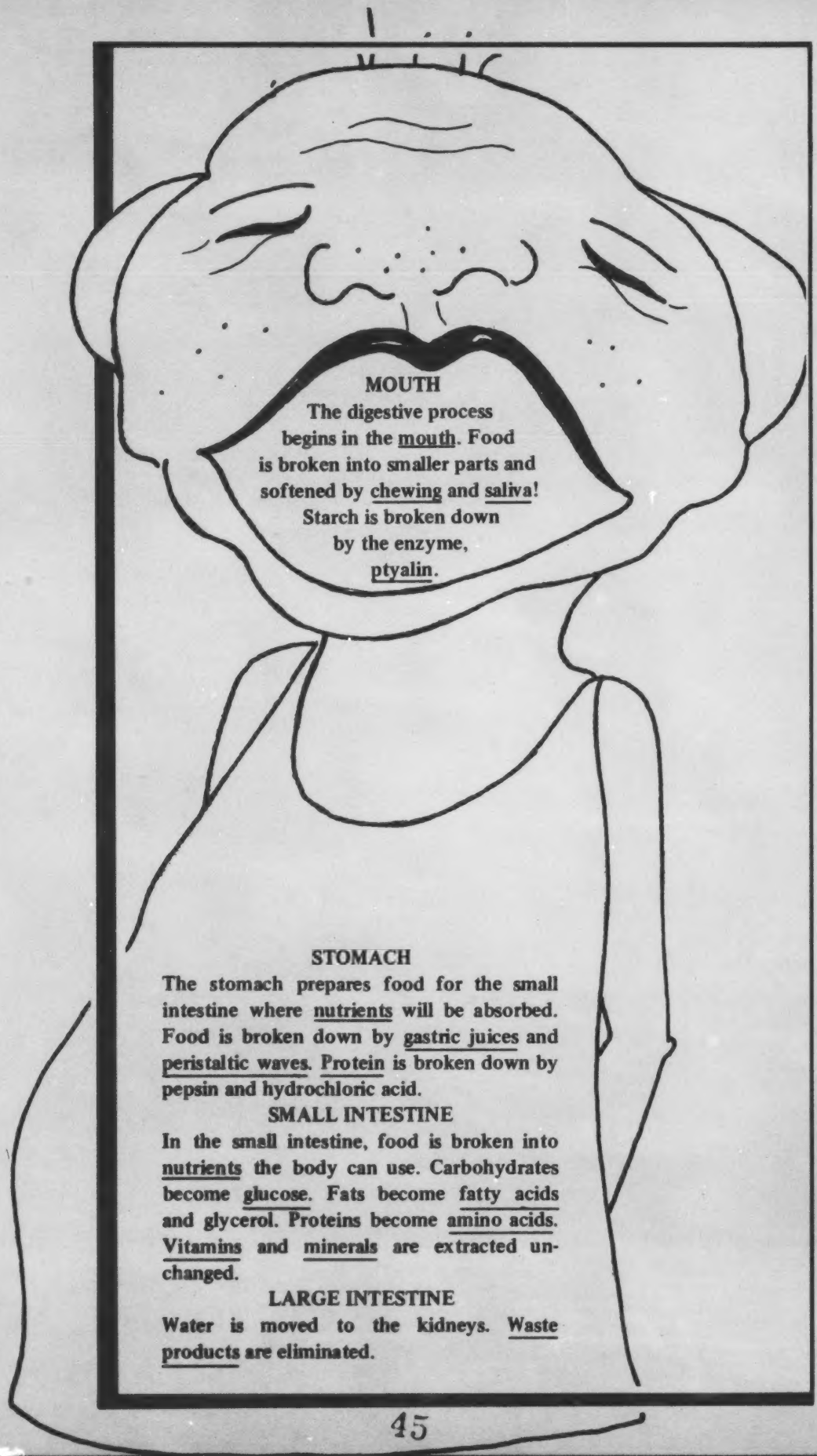
**Answer Key Student Activity 1**

# HOW THE BODY USES FOOD

DIRECTIONS: Fill in the blanks below as you listen to Points to Ponder about Digestion.



**MOUTH**

**The digestive process begins in the mouth. Food is broken into smaller parts and softened by chewing and saliva! Starch is broken down by the enzyme, ptyalin.**

**STOMACH**

**The stomach prepares food for the small intestine where nutrients will be absorbed. Food is broken down by gastric juices and peristaltic waves. Protein is broken down by pepsin and hydrochloric acid.**

**SMALL INTESTINE**

**In the small intestine, food is broken into nutrients the body can use. Carbohydrates become glucose. Fats become fatty acids and glycerol. Proteins become amino acids. Vitamins and minerals are extracted unchanged.**

**LARGE INTESTINE**

**Water is moved to the kidneys. Waste products are eliminated.**

## Answer Key Student Activity 2

# DIGESTION SEEK AND FIND

DIRECTIONS
Find the words in the scramble that match the definitions below. Circle the word in the word scramble, then write it in the blank, following the definition.

1. Process which transforms food into a form the body can use. DIGESTION
2. A substance which can produce chemical changes in food. ENZYME
3. Liquids which soften food in the mouth. SALIVA
4. An enzyme that begins to digest starch into sugars. PTYALIN
5. Moves chewed food to the stomach after food is swallowed. ESOPHAGUS
6. Liquid secreted by the liver to aid in the digestive process. BILE
7. A feeling of being full after eating. SATIETY
8. The upper part of the small intestine. DUODENUM
9. A compact form of sugar for storage. GLYCOGEN
10. The building blocks of protein. AMINO ACIDS
11. A simple sugar used by the body for energy. GLUCOSE
12. Tiny hair-like projections that line the wall of the small intestine. VILLI
13. Helps food pass through the digestive process and aids in elimination. FIBER
14. Form of fat which body uses for energy. FATTY ACIDS
15. Wave-like contractions that move food along the digestive tract. PERISTALTIC WAVES
16. Substance produced by the stomach to break down food. GASTRIC JUICE

T F M H J R O D C S E E S O P H A G U S T
A D O D U O D E N U M I L N O A N V P E S
G H T O S U D P R Q E B V I L L I O A V G
L J E D M F B O P Y T A L I N E V P L A D
Y R U B I L E E J S B L T Y P P Y I O W U
C B L A S G O R I G A S T R I C J U I C E
O W C M B U E A L N N C D E S B L R Y I O
G S E U L B H S I T T S L L H E O T A T P
E T A N I O G A T E O Y O Z M P E Y T L F
N S O F P I N Y G I H E A Y P I R N B A S
B O T Z Q R T S L E O T Z P T R S N B T E
C G L U C O S E E M E N A A T R A B Y S D
R I O D I N E Z W A E U S L N R L G I I F
N N C D E S E O A M R H I T N O I I V R A
A M I N O A C I D S B K P L T E V O R E A
L H J L T T A W P O F M S P U T A F Y P M
B K F A T T Y A C I D S R A E M A T T Y P

## Dietary Guideline 1:

# EAT A VARIETY OF FOODS

## D. Recommended Dietary Allowances (RDAs)

**OBJECTIVES**
When students complete this lesson, they should be able to: Cite Recommended Dietary Allowances (RDAs) for teenagers. Explain the importance of the Recommended Dietary Allowances (RDAs). Explain the contents of a package label. Identify types of package dating and explain how they are used. Analyze daily food intake according to nutrients specified in the RDAs. Differentiate between the RDAs and the U. S. RDAs.

**RESOURCES**

Teaching Aid 1: Points to Ponder About RDAs
Teaching Aid 2: Points to Ponder about Labeling
Teaching Aid 3: Points to Ponder about Package Dating
Teaching Aid 4: What Do You Know About RDAs?
Student Activity 1: How Much Do You Need?
Student Activity 2: How Much Did You Get?
Student Activity 3: What's on the Label?

**KEY WORDS**

fat-soluble vitamins
grams
micrograms
milligrams
RDA
U. S. RDA
water-soluble vitamins

**INTRODUCTION**
View the pictures of people representing different age groups and lifestyles. Refer to the pictures and answer the following question: "By simply looking at these pictures, can you tell which of these people eat a balanced diet each day?" [NOTE TO TEACHER: Point out that appearance can be deceiving when it comes to nutrition, and appearance does not always reflect nutritional habits. To analyze other people's nutritional health, you must obtain information on their basic eating patterns, lifestyle, and medical history. However, students can analyze their own personal nutritional health by comparing their daily food intake with the Recommended Dietary Allowances (RDAs). Stress that students can be sure they are getting a balanced diet by using basic nutrition knowledge and comparing their diets with the Recommended Dietary Allowances (RDAs). Point out also that RDAs are not absolute amounts for each individual.]

**SUGGESTED ACTIVITIES**
- Discuss Teaching Aid 1: Points to Ponder About RDAs. Discuss the importance of the RDAs in evaluating personal eating patterns.
- Review the RDAs by answering the following questions:

What are RDAs?
Who formulated the RDAs?
What information is obtained from the RDAs?
How can you use the RDAs?
How do the RDAs differ from the U. S. RDAs?
What is the primary purpose of the U. S. RDAs?

• Refer to Student Activity 1: How Much Do You Need? Using the chart, Recommended Daily Dietary Allowances, discuss the component parts of the RDA chart:
physical data
protein
fat-soluble vitamins
water-soluble vitamins
minerals.

Focus primarily on the specific recommended nutrients for the age category of teens: males, ages 15-18; females, ages 15-18.

• Listen to a chemistry instructor give a simple explanation of the chemicals of which nutrients in the RDA chart are composed and how they work. Your body utilizes the chemicals from the nutrients of the foods you eat. These nutrients are measured in the following units: grams (g); milligrams (mg); and micrograms (µg). Watch a demonstration on the measurements used for the RDA to illustrate the amounts of the nutrients recommended in the daily diet.
• Refer to the Watch Your Mouth food diary students recorded in the Daily Food Guide lesson. Select a day and analyze your food intake according to selected nutrients recommended in the RDAs. Use Student Activity 1: How Much Do You Need? to determine nutrient amounts needed? Record nutrient intake findings on Student Activity 2: How Much Did You Get? and evaluate nutrient intake.
• Discuss the role of RDAs in nutritional labeling. Use a display of labels to stimulate discussion. [NOTE TO TEACHER: Use Teaching Aid 2: Points to Ponder About Labeling.] Complete Student Activity 3: What's on the Label?
• Study a package label to identify other information which may be included. What other information is given? Why is it important to have this information? What information is required on all food containers?
• Visit your local grocery to observe food containers for package dating. Where is this information found? Why is it used? How can it contribute to the nutritional quality of the food? [NOTE TO TEACHER: Use Teaching Aid 3: Points to Ponder About Package Dating.]
•Study a food package label and complete Student Activity 3: What's on the Label?

## Teaching Aid 1

# POINTS TO PONDER ABOUT RDAs

•The RDAs are guidelines for the amounts of certain key nutrients needed by the body. The RDAs are set by the Food and Nutrition Board (FNB) of the National Research Council of the National Academy of Sciences. The RDAs were first published in 1943 and are revised every five years to remain current with nutrition research findings.

•The RDAs are recommended amounts of nutrients needed daily for optimum nutritional health. The RDAs are not absolute standards and represent a range between 10 percent and 50 percent above the actual minimum amount of the nutrient needed. The RDA may vary according to sex and age group. A person who has a nutritional deficiency disease or other illness may need more of the RDA of certain nutrients.

•The RDA are used to:
help evaluate daily food intake.
serve as a standard for meals served in large quantities, such as meals served for school lunches or to senior citizens.
guide researchers in analyzing the nutritional adequacy of the population.
guide experts in the food industry in developing nutrition labeling.
serve as the basis for U. S. RDAs which are used for nutritional labeling.

•Nutrition labeling information is given in terms of U. S. RDAs, an abbreviated version of the RDAs. The U. S. RDAs use the highest RDA level for each nutrient in the following age categories: infants to 12 months; children under four years of age; persons over four years; and pregnant or nursing women.

•Nutrients are measured in the following units :
Grams (g): 1/1000 of a kilogram (2.2406 pounds)
Milligrams (mg): 1/1000 of a gram
Micrograms (mcg) or (μg): 1/1000 of a milligram

## Teaching Aid 2

# POINTS TO PONDER ABOUT LABELING

•The package label can provide helpful information for comparing nutritive value, fat content, and caloric value of food products. Compare labels before deciding which product to buy.

•Certain foods, such as mayonnaise, ice cream, or macaroni, are not required to list ingredients on the label. Standards of identity are set by the government for such foods. For example, a food labeled "peanut butter" must be at least 90 percent peanuts.

•The label may give the following information:

1. Brand name
2. Name and address of manufacturer, packager, or distributor
3. Weight or liquid measure.

It may give information for the product's use, suggested recipes, and a picture of the product. If the food is shipped across state lines, the label must also include:

1. an accurate statement of quality
2. a list of ingredients in descending order of content
3. information on the food's use, if for special dietary purposes
4. statement regarding presence of artificial coloring, flavoring, imitations or chemical preservatives
5. an indication and explanation of substandard quality or substandard fill of containers.

Other information may include grade, price, universal product code.

•Any food that makes a claim in advertising that it will do something special for health must have a nutrition label. On other products nutrition labeling is voluntary.

•The nutrition label provides the following information:

1. The number of calories per serving
2. The amount of protein, carbohydrates and fats per serving
3. The percentage of the U.S. RDAs of protein, vitamins A and C, thiamin, riboflavin, niacin, calcium and iron per serving.

It may also list the amount per serving of other selected vitamins and minerals, cholesterol, fatty acids and sodium.

•The label must state if less than 2 percent of the U.S. RDA is contained of any of the nutrients listed.

•Note that sugar and salt content is not required on the nutrition label.

•Products sold in health food stores may not be governed by the Food and Drug Administration, and often ingredients are not listed on the product labels.

## Teaching Aid 3

# POINTS TO PONDER ABOUT PACKAGE DATING

• Package dating can help the consumer obtain food that is fresh and wholesome. Dates used on semi-perishable and perishable foods such as dairy and bakery products. Other foods that may or may not have a date are packaged foods such as canned goods or boxed cereals and meats, canned, or fresh.

• Dating is used on food packages in several ways:

1. Pack date–The pack date indicates when the food was manufactured or processed and packaged. This date will tell you how old the food is at the time you buy it.
2. Pull date–If the package is marked with a statement such as "Sell by November 17," the manufacturer thinks it would be best if the food were sold by that date. It does not mean that the food is unusable after that date.
3. Freshness date–A package may say "Better if used by November 17." Foods used after that date may not be as fresh.
4.. Expiration date–If the package is marked, "Expiration November 17," or "Do not use after November 17," do not use after the date marked on the package.

• Some companies use a code to post these dates. To understand the code, you must contact the company. Others use open dating which gives the dates in words and number such as "June 21."

## Teaching Aid 4

# WHAT DO YOU KNOW ABOUT RDAs?

**TRUE AND FALSE**

**Directions:** For Items 1-9, circle T if the statement is True. Circle F if the statement is False.

T F 1. RDAs are guidelines for the minimum amounts of certain key nutrients needed for good health.

T F 2. The RDAs are revised every five years by the Food and Nutrition Board.

T F 3. Nutrients are measured in grams, kilograms, and micrograms.

T F 4. A person with a disease or illness should eat more than the U. S. RDA of the nutrients listed.

T F 5. Food must be broken down into chemicals before they can be used by the body.

T F 6. The label must state if less than 5 percent of the USRDA is contained of any of the nutrients listed.

T F 7. Products in health food stores may *not* be governed by the Food and Drug Administration, and often ingredients are *not* listed on the product labels.

T F 8. Some foods are *not* required to list ingredients on the label.

T F 9. The package dating required on packaged foods, such as canned goods or boxed cereals, ensure freshness.

**MULTIPLE CHOICE**

**Directions:** For Items 10-17, write the letter for the best response to each statement in the blank to the left of the item.

_____ 10. The RDAs recommend a range of nutrient intake which is above the actual minimum amount needed by the body. The recommended range exceeds the minimum by
A. 10 to 50 percent.
B. 15 to 45 percent.
C. 20 to 45 percent.
D. 25 to 50 percent.

_____ 11. The following is *not* a category of nutrients included in the RDAs
A. Carbohydrates
B. Fat-soluble vitamins
C. Proteins
D. Water-soluble vitamins

_____ 12. The RDAs vary according to
A. age and weight.
B. age and sex.
C. sex and weight.
D. weight and height.

_____ 13. The primary purpose of the U. S. RDAs is to serve as the
A. basis for the RDAs.
B. guide for nutritional labeling.
C. standard for the Daily Food Guide.
D. standard for meals for large groups, such as school lunches.

_____ 14. To determine the amount of nutrients of a food, use
A. the Daily Food Guide.
B. the RDAs.
C. a table of food values.
D. the U. S. RDAs.

_____ 15. Food researchers use the RDAs to
A. analyze the nutritional adequacy of the population.
B. determine what nutrients are in food.
C. diagnose nutritional deficiency diseases.
D. predict the nutritional problems of senior citizens.

_____ 16. The U. S. RDAs do *not* make nutrient recommendations for which group?
A. Children under four years of age
B. Infants to 12 months
C. Pregnant or nursing women
D. Teenagers ages 15-18

_____ 17. Which of the following is *not* required on a nutrition label?
A. The number of calories per serving
B. The amount of protein, carbohydrates and fats per serving
C. The percentage of USRDAs of protein, vitamin A and C, thiamin, riboflavin, niacin, calcium, and iron per serving
D. The sugar and salt content

**MATCHING**

**Directions:** For Items 13-20, match the nutrients with the types of nutrients by writing the correct letter in the blank. The types may be used more than once.

| NUTRIENTS | TYPES OF NUTRIENTS |
|---|---|
| _____ 18. Calcium | A. Fat-soluble vitamin |
| _____ 19. Iodine | B. Mineral |
| _____ 20. Niacin | C. Water-soluble vitamin |
| _____ 21. Riboflavin | |
| _____ 22. Vitamin A | |
| _____ 23. Vitamin B | |
| _____ 24. Vitamin C | |
| _____ 25. Vitamin D | |

## Answer Key Teaching Aid 4

# WHAT DO YOU KNOW ABOUT RDAs?

1. T
2. T
3. F
4. F
5. T
6. F
7. T
8. T
9. F
10. A
11. A
12. B
13. B
14. C
15. A
16. D
17. D
18. B
19. B
20. C
21. C
22. A
23. C
24. C
25. A

## Dietary Guideline 1:

# EAT A VARIETY OF FOODS

## E. Milk and Milk Products

**OBJECTIVES**

When students complete this lesson, they should be able to: Identify major food sources and nutrient contributions of milk and milk products. Give examples of different forms of milk. Explain principles of milk purchase and storage. Describe milk cookery techniques for nutrient preservation. Explain food myths relating to milk and milk products. Prepare foods using milk and milk products. Determine ways to decrease the intake of fat and sugar when using milk products in the diet. Express a desire to include milk and milk products in the diet.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Make a Nutritious Move with Milk Products |
| Teaching Aid 2: | Points to Ponder About Milk and Milk Products |
| Teaching Aid 3: | Points to Ponder About Storing Milk and Milk Products |
| Teaching Aid 4: | Move Along with Milk Products |
| Teaching Aid 5: | Points to Ponder About Cooking with Milk and Milk Products |
| Teaching Aid 6: | What Do You Know About Milk and Milk Products? |
| Student Activity 1: | Facts About Milk and Milk Products |
| Student Activity 2: | Milk–Find the Form that Fits |
| Student Activity 3: | Storing Milk and Milk Products–What Would You Do? |
| Student Acitvty 4: | Selecting Milk and Milk Products–Be Choosy |
| Media Resource 1: | Eat Well, Be Well: Lemon Bavarian Cream |

**KEY WORDS**

cheese
curdling
evaporated
fortified
fresh
milk drink
milk products
nonfat dry milk
pasteurized
reconstitute
hard cheese
homogenized
ice cream
ice milk
lowfat milk
skim milk
soft cheese
sweetened condensed milk
yogurt

**INTRODUCTION**

Refer to the bulletin board, Teaching Aid 1: Make a Nutritious Move with Milk Products. Identify the different food sources in the milk and milk products group. Brainstorm to identify other sources of milk and milk products. Possible answers:

yogurt
cheese: Swiss, Cheddar, mozzarella
ice cream
ice milk
milk in cooked foods: creamed soups, sauces
puddings
milk in any form (buttermilk, whole, skim, lowfat, evaporated, nonfat, dry)

**SUGGESTED ACTIVITIES**

- Refer to Student Acitvity Sheet 1: Facts About Milk and Milk Products. Using the activity sheet, identify sources of milk and milk products, servings recommended daily, and nutrient contributions. [NOTE TO TEACHER: Use Teaching Aid 2: Points to Ponder About Milk and Milk Products to stimulate class discussion.]
- Brainstorm to identify different forms of milk. Using the suggested forms of milk, complete Student Acitvity 2: Milk--Find the Form That Fits. At the conclusion of the activity, distinguish between the different forms of milk available to consumers. Discuss situations in which the purchase of each form of milk would be a wise choice.
- Collect an exhibit of cartons or containers used for milk and milk products. Ask the following questions: What information is included on the labels? What imitation products (if any) are represented by the cartons? Which products were labeled lowfat? Compare the fat and nutrient content of whole milk products with lowfat milk products. When would you use lowfat milk products?
- Using the forms of milk named in Student Activity 2: Milk--Find the Form That Fits, calculate the cost per unit (gallon, liter, or quart) of the different forms (fresh whole, nonfat dry, evaporated). Discuss the following and explain: Which would you buy to drink? Which would you buy for cooking and baking? What are the differences in nutrient contributions? What does each form cost per 8-oz. serving?
- Listen to Teaching Aid 3: Points to Ponder About Storing Milk and Milk Products; then complete Student Activity 3: Storing Milk and Milk Products--What Would You Do?
- Refer to Watch Your Mouth (Dietary Guideline One, A. Daily Food Guide; Student Activity 3). Analyze your three-day food intake for milk and milk products in meals and snacks. Ask the following questions: How many daily servings did you obtain from the milk group? What different forms of milk and milk products did you consume? How could your daily intake of milk and milk products be altered to decrease fat and sugar consumption? What milk alternates might appeal to a person who does not like to drink milk?
- View the transparency, Teaching Aid 4: Move Along with Milk Cookery. [NOTE TO TEACHER: Using Teaching Aid 5: Points to Ponder About Cooking with Milk and Milk Products, stress milk cookery techniques for preservation of nutrients.]
- Conduct a survey of myths or fallacies associated with milk and milk products. Interview peers, parents, grandparents, and others. Compile a list, and have the students determine whether the findings are True or False. Examples: Milk and fish served together can poison you. Raw milk is safer to drink than pasteurized. Some food combinations, such as milk and cabbage, cucumbers, and tomatoes, may be harmful to the body. Milk is constipating. Adults do not need milk because their bones are already formed. Yogurt and brewer's yeast are requirements in all diets. Pasteurization of milk destroys nutrients.
- Solve the problems in Student Activity 4: Selecting Milk and Milk Products--Be Choosy. Analyze the situations given and make appropriate decisions. Discuss your solutions with classmates.
- Conduct lab experiences focusing on cookery principles of milk and milk products. Suggestions for lab experiences include:

Snacks: yogurt dip, cottage cheese dip, cheese fondue
Beverages: milk-based beverages such as milk shakes, yogurt, fruit drinks.

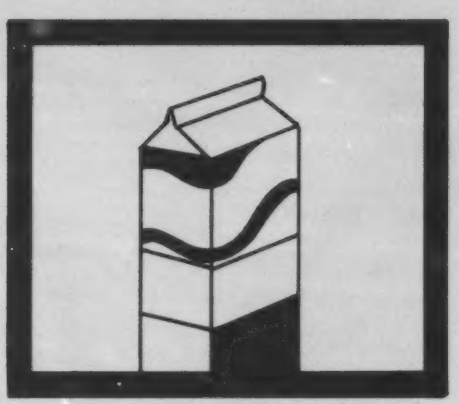
**Banana Smoothie**
1 whole banana, cut in chunks
(Other fruits may be substituted or added.)
1 cup buttermilk
1 8-oz. carton unflavored yogurt
8-10 ice cubes
In blender combine ingredients. Cover and blend until smooth. Yield: 4 servings

Others: cream soups, puddings, sauces, dressings, whipped nonfat dry milk

- Make recipe substitutions using different forms of milk. For example: nonfat dry reconstituted milk, skim milk, or evaporated milk for whole milk.
- Try substituting yogurt for sour cream or mayonnaise in traditional recipes. When using yogurt, add it at the end of the cooking process over low heat. Heat through, but do not boil. Fold yogurt in gently when adding it to hot or cold mixtures to prevent loss of thickness.
- Try substituting lowfat soft cheeses, such as cottage cheese or mozzarella, for hard cheeses such as Swiss and Cheddar.

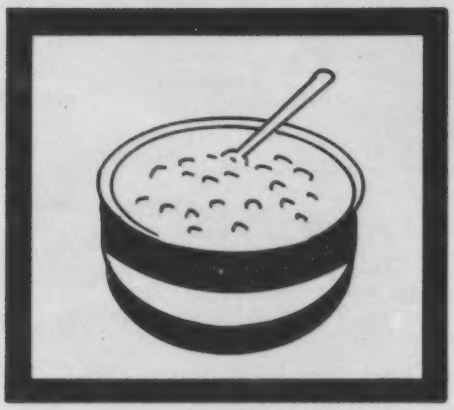
Teaching Aid I

# MAKE A NUTRITIOUS MOVE WITH MILK PRODUCTS

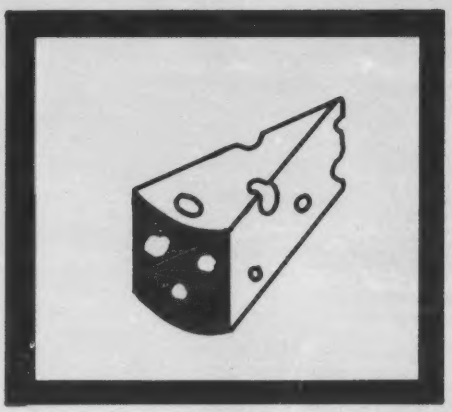


MILK

ICE - CREAM



COTTAGE CHEESE



CHEESE

## Teaching Aid 2

# POINTS TO PONDER ABOUT MILK AND MILK PRODUCTS

•Milk used in cooked foods counts as part of the recommended daily allowances (RDAs) for this group. Examples: sauces, puddings, creamed soups.

•Milk products and equivalents will yield approximately the same amount of calcium but varying amounts of calories. (The concept of calories will be discussed under Dietary Guideline II: Maintain Ideal Weight, D. Weight Control).

•Milk comes in many different forms:
Whole milk is the form as it comes from the cow. Whole milk which has been heated to destroy harmful organisms is pasteurized. Whole milk processed to distribute fat particles evenly is homogenized. Milk which has been processed so that only .5 to 2.0 percent fat remains is lowfat. Milk which has only .5 percent of the fat remaining is skim. Canned milk from which about 60 percent of water has been removed is evaporated. Canned milk from which about 60 percent of the water has been removed and about 45 percent sugar has been added is sweetened condensed. Skim milk from which all the water has been removed is nonfat dry. Whole milk which has chocolate flavor added is chocolate milk. Skim milk which has chocolate flavor added is chocolate drink. Filled milks are sold as substitutes for milk. Filled milks contain nonfat dry milk and may or may not equal natural milks. Some kinds of filled milk do not contain vitamins A and D. Filled milks contain vegetable oil instead of milk fat. Some filled milk contains coconut oil which is high in saturated fat. Some filled milk contains polyunsaturated fats such as corn, soy, cottonseed, or safflower oil. Imitation milk contains water, vegetable oil, and sodium caseinate (a milk protein) or soybean protein. The vegetable oil is frequently coconut oil. Because it is low in protein it is a poor substitute for milk.

• Servings vary according to nutritional needs of specific age groups. Compare nutritional needs of a teenager and an adult. Ask the following questions:
Why are the recommended servings lower for an adult than for a teenager? Why are the recommended servings higher for pregnant women than for other adults? Why are the recommended servings higher for teens than for children?

•Milk is an excellent source of vitamins, minerals, and proteins.
Minerals– Milk is an abundant source of calcium. The bones are a storehouse for calcium. What happens when the body doesn't receive the supply of calcium it needs? The body draws calcium from the bones when the diet is deficient in calcium. Continuous lack of calcium in the diet will affect the soundness of bones and teeth. A long-term deficiency of calcium can result in osteoporosis, a disease that results in brittle and weak bones. One woman in four past menopause has this disease which can result in broken bones, often broken hips. Phosphorus combines with calcium to make bones and teeth. Phosphorus is widely distributed in foods other than milk and milk products, such as whole grains, meats, poultry eggs.
Vitamins– Vitamin A is found in the fat portion of the milk referred to as cream or butterfat. Point out that whole milk and lowfat milk contain fat. Skim milk and nonfat milk have reduced or no fat content. Vitamin D is often added to milk to fortify it. Vitamin D helps the body use calcium and phosperous to build bones and teeth. Fortification is the term used when vitamin D is added to milk. Riboflavin is destroyed easily by light; therefore, to protect the riboflavin, milk is usually stored in cartons. All forms of milk are rich sources of riboflavin (vitamin $B_2$).
Protein– Milk and milk products contain high-quality protein.

## Teaching Aid 3

# POINTS TO PONDER ABOUT STORING MILK AND MILK PRODUCTS

**REFRIGERATOR STORAGE**

Fresh milk should be stored in the coldest part of the refrigerator in a covered container to prevent absorption of undesirable flavors and odors. Exposure to light destroys riboflavin. Cheeses should be tightly covered or wrapped. Soft cheeses (cream, cottage) spoil more easily than hard cheeses (Swiss, Cheddar). Milk products such as yogurt and cottage cheese should be used before the expiration date on the carton.

**PANTRY OR SHELF STORAGE**

Dry milk may be stored at room temperature for six to eight months in a covered container but should be refrigerated as soon as it is reconstituted. Unopened canned milk may be stored at room temperature. When opened, store any remaining canned milk in the refrigerator.

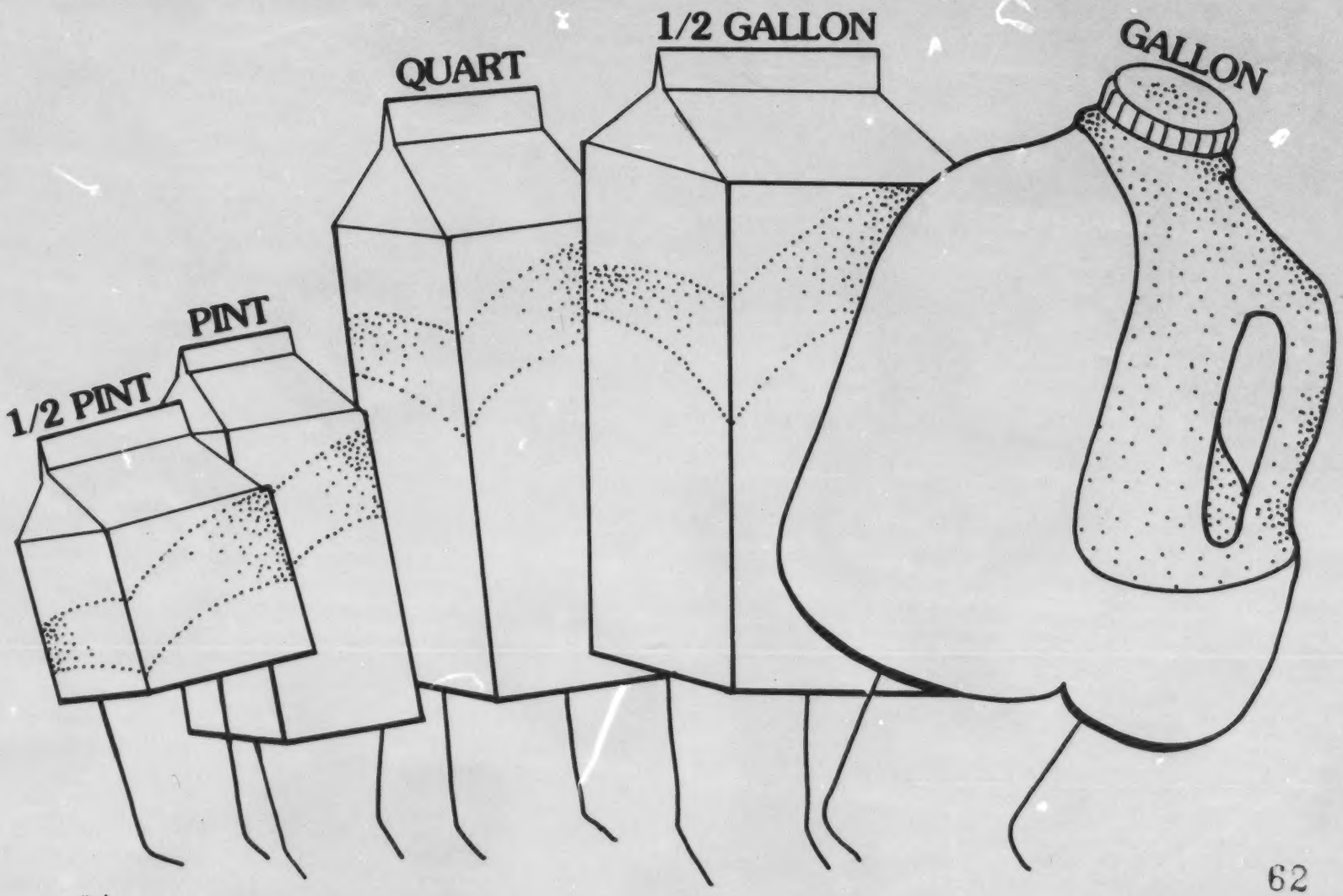
**FREEZER STORAGE**

Milk and cream can be frozen for one month. Ice cream and ice milk should be stored in the freezer section of the refrigerator in a closed container. These, milk products will keep up to two months. Cheeses can be stored in the freezer section of the refrigerator in an airtight wrapping. Cheeses should be used within one to two months. Frozen cheese should be thawed in the refrigerator and used soon after thawing.

Teaching Aid 4

# MOVE ALONG WITH COOKERY

and remember to use low heat !




57

61

62

## Teaching Aid 5

# POINTS TO PONDER ABOUT COOKING WITH MILK AND MILK PRODUCTS

• When cooking with milk, remember to use low heat to:
prevent curdling.
reduce scum formation.
avoid boiling over.
prevent scorching.

• When cooking with cheese, remember to use low heat to prevent:
tough, rubbery consistency.
a tough, stringy texture.
the separation and draining of fat from cheese with high fat content.

• In preparation of sauces, cream soups, or puddings, remember to:
Use low temperature and fresh milk.
Add thickening agents to a small amount of the milk before adding to the mixture.
Use a double boiler to prevent scorching.
Thicken the milk or the acid food before adding acid foods to milk.

• To prevent the formation of milk film skin, remember to:
Use low temperature.
Stir the milk while heating.
Beat the finished product with a rotary beater or wire whisk to produce a top layer of foam.
Use a covered container for cooking and storing.

## Teaching Aid 6

# WHAT DO YOU KNOW ABOUT MILK AND MILK PRODUCTS?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle T if the statement is True. Circle F if the statement if False.

T F 1. Pasteurization is a process in which milk is heated to destroy harmful organisms.

T F 2. Skim milk contains little or no fat so it is *not* as good a source of vitamin A as whole milk.

T F 3. Hard cheese which has been frozen should be thawed quickly in order to avoid separation of fat.

T F 4. Dry milk can be stored at room temperature for 16 to 18 months in a tightly covered container.

T F 5. One cup of flavored yogurt has more nutritional value than one cup of whole milk.

**MULTIPLE CHOICE**

**Directions:** For Items 6-15, write the letter for the best response in the blank to the left of the item.

_____ 6. The milk form that would reduce the caloric content of a recipe most is
A. evaporated milk.
B. lowfat milk.
C. nonfat dry milk.
D. sweetened condensed milk.

_____ 7. Plain yogurt can be substituted in recipes that call for
A. mayonnaise or sour cream.
B. reconstituted dry milk or whole milk.
C. sweetened condensed milk or evaporated milk.
D. whipped cream or dry curd cottage cheese.

_____ 8. Whole milk is *not* a good source of which of the following nutrients?
A. Calcium
B. Riboflavin
C. Vitamin A
D. Vitamin C

_____ 9. Exposure to light destroys which of the following nutrients in milk?
A. Calcium
B. Phosphorus
C. Riboflavin
D. Vitamin D

_____ 10. A daily intake of four cups of milk is recommended for which of the following?
A. Children and teenagers
B. Children and pregnant women
C. Pregnant women and nursing mothers
D. Teenagers and nursing mothers

_____ 11. The process of adding a nutrient, such as vitamin D to milk is called
A. condensation.
B. evaporation.
C. fortification.
D. homogenization.

_____ 12. If you seldom use milk except in cooking, which form of milk should you keep on hand?
A. Evaporated milk
B. Nonfat dry milk
C. Skim milk
D. Whole milk

_____ 13. The recommended storage period for ice cream and/or ice milk if properly stored in the freezer, is
A. six months or longer.
B. one to three months.
C. two to four months.
D. up to two months.

_____ 14. Which of the following is *not* recommended to prevent the formation of a skin on milk when it is cooked?
A. Bring to a rolling boil.
B. Stir while heating.
C. Use a lid while cooking.
D. Mix with a rotary beater to form a foam.

_____ 15. Which is the best way to prevent scorching of milk-based dishes?
A. Add thickening agents to the milk before heating.
B. Cook food in a double boiler.
C. Have all ingredients at room temperature.
D. Use low heat.

**Situation**

Polly and Paul are five-year-old twins. Their sister Margaret, age 16, fixes breakfast, lunch, dinner, and snacks for everyone on Saturday while their mother and father are at work. Slender Polly is active and likes to eat. So does Paul, but he is less active and tends to be chubby. Margaret is a member of the swimming team and needs lots of energy. She is so active she finds it hard to gain weight.

**Directions**: For Items 16-20, evaluate the following menus according to the Daily Food Guide. Then, study the food choices listed and indicate which foods Margaret could prepare to meet best the needs of Polly, Paul, and herself.

| BREAKFAST | A.M. Snack? | LUNCH | P.M. Snack? | DINNER |
|---|---|---|---|---|
| Orange juice | | Tuna Sandwich | | Baked chicken |
| Scrambled eggs | | Carrot Sticks | | Broccoli |
| Toast | | (Beverage?) | | Tossed Salad |
| (Beverage?) | | | | Roll |
| | | | | Iced tea |
| | | | | Dessert |
| _____ | ___ | _____ | ___ | _____ |

_____ 16. Which breakfast beverage would you choose for Margaret?
A. Lowfat milk
B. Skim milk
C. Whole milk
D. Tea

_____ 17. Which A.M. snack would you choose for Paul?
A. Celery and carrot sticks
B. Celery and cheese sticks
C. Celery and yogurt dip
D. Cheese sticks

_____ 18. Which lunch beverage would you choose for Polly?
A. Chocolate drink
B. Chocolate milk
C. Whole milk with chocolate syrup
D. Skim milk

_____ 19. Which milk shake would you choose for Paul?
A. Lowfat milk and ice milk
B. Skim milk and fruit
C. Whole milk and ice cream
D. Whole milk and fruit

_____ 20. Which dinner dessert would you choose for Margaret?
A. Pudding with fruit topping
B. Fruit cup and cookie
C. Fruit cup
D. Cookies

**MATCHING**

**Directions**: For Items 21-25, match the definition to the term it best describes by writing the correct letter in the blank to the left of the definition.

| DEFINITIONS | TERMS |
|---|---|
| _____ 21. Milk which has all of the water and fat removed | A. Evaporated milk |
| _____ 22. Milk which has particles of fat evenly distributed | B. Homogenized milk |
| _____ 23. Milk which contains .5 to 2.0 % fat | C. Lowfat milk |
| _____ 24. Milk which has only about 40% of its original water content | D. Nonfat dry milk |
| _____ 25. Milk which has reduced liquid and increased sugar content | E. Skim milk |
| | F. Sweetened condensed milk |

## Answer Key Teaching Aid 6

# WHAT DO YOU KNOW ABOUT MILK AND MILK PRODUCTS?

1. T
2. T
3. F
4. F
5. T
6. C
7. A
8. D
9. C
10. D
11. C
12. B
13. D
14. A
15. B
16. C
17. A
18. B
19. B
20. A
21. D
22. B
23. C
24. A
25. F

## Answer Key Student Activity 2

# MILK–FIND THE FORM THAT FITS

**Down**

1. Sweetened Condensed
2. Chocolate milk
3. Evaporated
4. Skim
7. Nonfat dry
9. Fortified

**Across**

2. Chocolate drink
5. Whole pasteurized
6. Homogenized
8. Vitamin D
10. Lowfat

## Answer Key Student Activity 3

# STORING MILK AND MILK PRODUCTS – WHAT WOULD YOU DO ?

1. Fresh whole milk
   Cottage cheese
   Yogurt
   Ice cream
   Skim milk
   Ice milk

2. Unopened canned milk may be stored at room temperature. After being opened, any liquid milk should be stored in the refrigerator.

3. Milk products should be used before the expiration date listed on the carton.

4. Check the cottage cheese for separation or a spoiled odor. If it appears normal in color, texture, and odor, the cottage cheese should be safe to eat.

5. Reconstitute the nonfat dry milk according to package instructions, and substitute for fluid milk. Remaining reconstituted milk should be refrigerated.

6. Ice cream and ice milk will keep up to two months.

7. Cheeses can be stored in the freezer section of the refrigerator in airtight wrapping. Cheeses should be used within one to two months. Frozen cheeses should be thawed in the refrigerator and used soon after thawing.

## Answer Key Student Activity 4

# SELECTING MILK AND MILK PRODUCTS – BE CHOOSY

1. **Skim milk** – decreased caloric value

2. **Nonfat dry milk** – may be stored at room temperature six to eight months in covered container and should be refrigerated as soon as reconstituted. Nonfat dry milk may be reconstituted in the amount needed.

3. **Breakfast**
   Skim milk or lowfat milk

   **Lunch**
   Whole milk, skim milk, lowfat milk

   **Dinner**
   Ice milk or yogurt

   **Snack**
   Lowfat mozzarella cheese
   Yogurt
   Cottage cheese

## Dietary Guideline 1:

# EAT A VARIETY OF FOODS

## F. Meat and Legumes

**OBJECTIVES**

When students complete this lesson, they should be able to: Identify major food sources and nutrient contributions of meats and legumes. Give examples of complete and incomplete sources of protein. Explain effective techniques of protein cookery, nutritive preservation, purchase, and storage. Analyze different cuts or forms of meat, fish, or poultry, according to fat content, caloric value, and nutritive value. Prepare food products using legumes, seeds, and nuts.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Meat and Legumes |
| Teaching Aid 2: | Complete or Incomplete? That Is the Question! |
| Teaching Aid 3: | Points to Ponder About Proteins |
| Teaching Aid 4: | Which Would You Choose? |
| Teaching Aid 5: | Points to Ponder About Eggs |
| Teaching Aid 6: | Points to Ponder About Legumes, Nuts, and Seeds |
| Teaching Aid 7: | Legume Cookery |
| Teaching Aid 8: | What Do You Know About Meat and Legumes? |
| Student Activity 1: | Meat and Legumes |
| Student Activity 2: | Mission: Completion |
| Student Activity 3: | It's All in the Cut of the Meat |
| Student Activity 4: | A Chicken in Every Fot |
| Student Activity 5: | Fish Facts |
| Student Activity 6: | Get Egg-cited |
| Media Resource: | Eat Well, Be Well:<br>Fish in Wine and Yogurt Sauce<br>Crispy Baked Chicken<br>Cheese Tostados<br>Tuna Quiche<br>Turkey Curry<br>Beef Stroganoff<br>Stir-Fried Chicken |

**KEY WORDS**

amino acids
binder
cholesterol
complete protein
emulsify
incomplete protein
iron
lean cut
leavening
legumes
marbling
phosphorus
polyunsaturated
protein
shellfish
saturated
thickener
vitamins

## INTRODUCTION

• Study a display of foods from the Meat and Legume Group. Examples include eggs, peanut butter, tuna fish, soybeans. As you refer to the display, answer the following question: What nutrient do eggs, tuna fish, and peanut butter have in common? Discuss the function of protein in the diet. Brainstorm to identify additional food sources of the Meat and Legume Group.

## SUGGESTED ACTIVITIES

• Identify the number of servings recommended daily, and typical nutrient contributions per serving for meat and legumes. Complete the blanks in Student Activity 1: Meat and Legumes. [NOTE TO TEACHER: Use Teaching Aid 1: Points to Ponder about Meat and Legumes and Answer Key for Student Activity 1: Meat and Legumes for background information.]

• Distinguish the difference between complete and incomplete proteins. View Teaching Aid 2: Complete or Incomplete? That is the Question! [NOTE TO TEACHER: Using Teaching Aid 3: Points to Ponder About Proteins, discuss with the class the concept of complete and incompelte proteins.]

• Complete Student Activity 2: Mission: Completion. This activity reviews the importance of complete proteins in the diet and will help you learn to distinguish between complete and incomplete protein food sources.

• Using Teaching Aid 4: Which Would You Choose? discuss types of meat and meat cuts. Distinguish between different kinds of meat: Beef–meat from mature cattle older than one year, veal–midly flavored from calves usually three to 14 weeks old; pork–meat from hogs usually not older than one year; lamb–meat from sheep less than one year old.

• Discuss specific differences in fat and caloric content between different cuts of meat. Discuss protein content in relation to caloric value. [NOTE TO TEACHER: The nutrient density of meat is related to the amount of protein obtained compared with the caloric value. The higher nutrient density is shown by the greater amount of protein obtained from the least number of calories. Example: Pot roast: The lean-and-fat cut provides 23 grams of protein and 245 calories compared with the lean-only cut which provides approximately the same amount of protein (22 grams) but only 140 calories.] Using Student Activity 3: It's All In The Cut Of The Meat, analyze different cuts of meat, fish, and poultry according to fat content, caloric value, and nutritive value.

• Using Student Activity 4: A chicken In Every Pot, discuss tips for cooking poultry products and nutritional advantages of poultry products. [NOTE TO TEACHER: Use Answer Key for Student Activity 4: A Chicken in Every Pot for information.]

• Using Student Activity 5: Fishy Facts, discuss the nutritional advantages of fish products. [NOTE TO TEACHER: Use Answer Key for Student Activity 5: Fishy Facts for Information.]

• Work in groups to compare prices of fish products. For example, compare the price of fresh fish fillets with frozen; fresh shrimp or crab with frozen. Compare canned fish chowder with homemade soup. Compare the labels of tuna packed in oil and tuna packed in water. Discuss your findings with the class.

• Solve this riddle: What food comes wrapped in its own handy package, can be eaten in dozens of ways, is an inexpensive source of protein, and a real crack-up? (Answer: an egg)

• Discuss the role of eggs as a protein source in the diet. [NOTE TO TEACHER: Use Student Activity 6: Get Egg-cited and Teaching Aid 5: Points to Ponder About Eggs for information on the nutritive value of eggs, storing eggs, and cooking with eggs.]

• Conduct lab experiments to illustrate different functions of eggs in cooking. Experiment with products using eggs as emulsifiers, thickeners, binders, and leaveners. Some recipes depend on these specific functions and others rely on the interaction of more than one of the egg's properties. For example, in a quiche, eggs help thicken, leaven, and bind the ingredients. Plan menus that include each recipe. Compare how the eggs were used. Experiment with the substitution of two egg whites for one whole egg, such as in the egg coating for French toast.

• Set up a display of different types of legumes, seeds, and nuts, The display could consist of black beans, chickpeas, kidney beans, lima beans, navy beans, soybeans, pumpkin seeds, sunflower seeds, seasame seeds, and a variety of nuts. Discuss the use of legumes as a meat alternate to provide protein. Use the following questions to generate discussion: 1) What is meant by the term "meat alternate"? 2) What are legumes? What key nutrient do legumes provide? 3) How can legumes be prepared to yield a complete protein? 4) What are ways legumes are used in food preparation? 5) Name legumes you have eaten 6) What is the nutrient contribution of seeds? 7) What is the fat content of two tablespoons of peanut butter? Ten peanuts? One-half cup cooked dried beans? 8) What is the difference between dry roasted and salted nuts? [NOTE TO TEACHER: Use Teaching Aid 6: Points to Ponder About Legumes, Nuts, Seeds for background information.]

• Suggest ways to include legumes in your diet. Viewing Teaching Aid 7: Legume Cookery, discuss proper preparation of legumes. [NOTE TO TEACHER: Be sure the following points are included:

- Bean cookery consists of soaking and simmering the beans. Remember not to discard the soaking water, which is full of B vitamins.
- Beans are simmered until they are tender, usually from two to three hours.
- More water may be added to prevent scorching.
- A pressure cooker may be used as a quick method for cooking beans. The beans are boiled first, soaked for an hour, and then pressure cooked for approximately 15 to 20 minutes.
- Baking soda destroys the B-vitamin, thiamine, and other bean nutrients. Therefore, it should not be added to cooking water, as is often suggested, when cooking with hard water.]

• Conduct laboratory experiments using legumes, seeds, and nuts. Suggested experiments are: Prepare foods eaten by teens combining soybean products with the regular ingredients. Soy flour does not contain gluten so it must be mixed with wheat flour in baked products. Products might include pancakes, muffins, and breads. Compare the taste, texture, color, and shape of the products with those made from regular ingredients.

Experiment with roasting different varieties of seeds, such as pumpkin, winter squash, sunflower, and sesame. Compare those roasted in class with commercially-packaged seeds for nutritive value, and fat and salt content. Make peanut butter in a blender or food processor. Compare with your favorite commercial brand in terms of cost and flavor.

Plan and prepare a favorite meat recipe using an alternate source of protein from another food source, such as a vegetable protein from textured soy or gluten sources available in the supermarket. Prepare both the original and altenate recipes. Display with each product the label or package of the protein substitute and a copy of the original recipe.

Use the same experiment substituting legume sources for the meat, such as tofu (bean curd), nuts, and a variety of dried beans. Evaluate the products using such questions as: How does it differ from the original recipe in taste, texture, appearance? How else could the protein substitute be used? How could the product be improved?

• Compute the protein content, caloric value, and cost per serving of the recipes. Compare the products and determine which is the most economical for the protein content provided.

• Develop and conduct a survey of myths and fallacies associated with meats and legumes. Interview peers, parents, grandparents, and others to determine how widespread these fallacies are. [NOTE TO TEACHER: Myths about meats and legumes include: White eggs are more nutritious than brown eggs. Protein pills are effective in increasing athletic ability and endurance. Dry-roasted peanuts do not have calories. "Organic" meats and poultry are safer sources of protein then regularly produced meats. Raw eggs have more nutrients than cooked. Oysters, raw eggs, and rare of raw meat increase sexuality. Gelatin is an excellent sources of protein and will strengthen the fingernails. Fish is "brain food." An athlete needs to eat steak every meal to keep in shape.]

## Teaching Aid 1

# POINTS TO PONDER ABOUT MEAT AND LEGUMES

•One ounce of meat can be substituted by ¼ to ½ cup nuts or seeds, and ½ to ¼ cup cooked dry beans, peas, soybeans, or lentils.

•Recommend varying choices among these food sources because each has distinct nutritional advantages. Examples: Red meats supply zinc; liver and egg yolks supply vitamin A; soybeans, dry peas, and nuts supply magnesium.

•Both polyunsaturated and saturated fats are present in food sources from the Meat and Legume Group. A saturated fat has as many hydrogen atoms as possible on its molecule chain. A polyunsaturated fat has fewer hydrogen atoms. Usually polyunsaturated fats are more desirable in the diet. Fats are broken down into fatty acids for use by the body. Fish and poultry sources have relatively smaller amounts of calories and saturated fats. Sunflower and sesame seeds contain polyunsaturated fats.

•Cholesterol is found in foods of animal origin. Both the lean and fat of all meats contain cholesterol. Egg yolks and organ meats have the highest concentration of cholesterol. Foods relatively low in cholesterol are fish and shellfish, except for shrimp.

•Meats are a reliable source of iron. The body can absorb better the iron provided by these foods if they are eaten in combination with a good source of vitamin C. Good iron sources include: organ meats, beef, pork, lamb, eggs, dry beans and peas. Many women whose daily intake is below the RDA of 18 mg have iron deficiencies. Iron is not excreted by the body and can be stored. By including iron-rich foods in the diet, women can build iron reserves for use during iron-loss periods in the life cycle: pregnancy, menstruation, the teen years.

•Only foods of animal origin contain vitamin $B_{12}$ naturally. Thus, a completely vegetarian diet would lead to inadequate vitamin $B_{12}$ intake. Vegetarians who avoid all animal foods should be urged to use fortified soybean foods or vitamin $B_{12}$ supplements. They should also focus on combinations of bean products and grain products to yield an almost complete protein.

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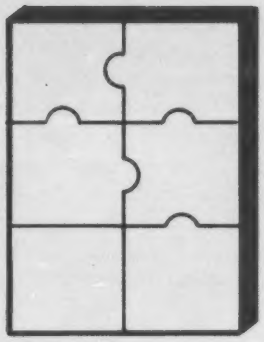
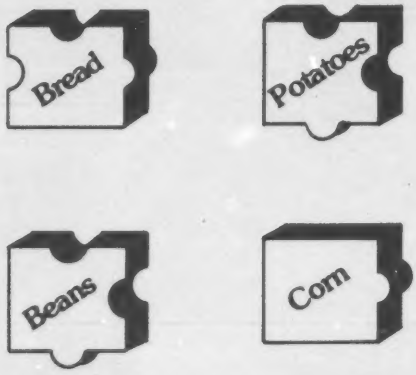
# COMPLETE OR INCOMPLETE? THAT IS THE QUESTION!

## Complete Proteins

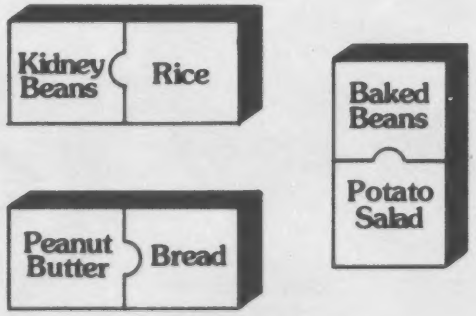


Beef
Lamb
Pork
Chicken
Egg

## Incomplete Proteins




## Complementary Proteins



## Teaching Aid 3

# POINTS TO PONDER ABOUT PROTEINS

•Proteins are large, complex molecules composed of smaller units called amino acids. Approximately 22 amino acids have been isolated by scientists as present in the human body or food proteins. All 22 amino acids are important in maintaining health. Eight of these amino acids cannot be synthesized by the body in amounts necessary to meet its needs. These essential amino acids, found in complete proteins, must be supplied by the diet. Nonessential amino acids can be synthesized by the body.

•The quality of proteins present in foods depends upon the essential amino acids the foods supply.

•Complete proteins supply adequate amounts of all essential amino acids. Proteins from animal sources (meat, milk, eggs, etc.) are examples of complete or high-quality proteins.

•Incomplete proteins, from plant sources, are deficient in one or more of the essential amino acids. These proteins tend to have incomplete patterns of essential amino acids. Examples of incomplete protein foods are grains, vegetables and fruit. If incomplete protein plant foods are eaten with protein-rich animal foods, the incomplete protein of the plant food can be better used by the body.

•Complementary proteins are two or more foods which together contain enough of all the essential amino acids. When complimentary proteins are eaten at the same meal, they provide the body with the same nutrients as complete protein. Beans and rice; macaroni and cheese; cereal with milk; ham sandwich; chicken and noodles are examples of complimentary protein. As a result, vegetarians who select a diet containing a wide variety of foods are able to maintain adequate protein intake.

## Teaching Aid 4

# WHICH WOULD YOU CHOOSE?[1]

| Meat Cut | Calories | Protein (g) | Fat (g) | Saturated Fatty Acids (g) |
|---|---|---|---|---|
| Pot Roast | | | | |
| Lean and fat (3 oz.) | 245 | 23 | 16 | 6.8 |
| Lean only (2.5 oz.) | 140 | 22 | 5 | 2.1 |
| Ground Beef Patty | | | | |
| Lean with 21% fat (3 oz.) | 235 | 20 | 17 | 7.0 |
| Lean with 10% fat (3 oz.) | 185 | 23 | 10 | 4.0 |
| Beef Sirloin Steak, Broiled | | | | |
| Lean and fat (3 oz.) | 330 | 20 | 27 | 11.3 |
| Lean only (2 oz.) | 115 | 18 | 4 | 1.8 |
| Round Steak, Braised | | | | |
| Lean and fat (3 oz.) | 220 | 24 | 13 | 5.5 |
| Lean only (2.4 oz.) | 130 | 21 | 4 | 1.7 |
| Beef Liver, Fried | | | | |
| (3 oz.) | 195 | 22 | 9 | 2.5 |
| Pork Chop, Broiled | | | | |
| Lean and fat (3 oz.) | 305 | 19 | 25 | 8.9 |
| Lean only (2 oz.) | 150 | 17 | 9 | 3.1 |
| Lamb Chop, Broiled | | | | |
| Lean and fat (3 oz.) | 360 | 18 | 32 | 14.8 |
| Lean only (2 oz.) | 120 | 16 | 6 | 2.5 |
| Bacon (2 slices) | 85 | 4 | 8 | 2.5 |
| Chicken, Poultry | | | | |
| Breast, fried | | | | |
| (½ breast, 2.8 oz. no bones) | 160 | 26 | 5 | 1.4 |
| Broiler, broiled, | | | | |
| (fresh only, 3 oz.) | 120 | 45 | 3 | .9 |
| Turkey | | | | |
| Light meat | | | | |
| (2 pieces–4" x 2" x ¼") | 150 | 28 | 3 | .9 |
| Dark meat | | | | |
| (4 pieces–2½" x 1 5/8" x ¼") | 175 | 26 | 7 | 2.1 |

Modified from USDA Agricultural Information Sets 382-1, 2, 3. Revised, 1979

| Meat Cut | Calories | Protein (g) | Fat (g) | Saturated Fatty Acids (g) |
|---|---|---|---|---|
| Bluefish<br>baked w/margarine (3 oz.) | 135 | 22 | 4 | |
| Fish Sticks<br>breaded, cooked frozen<br>3 sticks (3 oz.) | 150 | 15 | 9 | |
| Ocean Perch<br>breaded, fried (3 oz.) | 195 | 16 | 11 | 2.7 |
| Shrimp, canned (3 oz.) | 100 | 21 | 1 | .1 |
| fried (3 oz.) | 190 | 17 | 9 | 2.3 |

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## Teaching Aid 5

# POINTS TO PONDER ABOUT EGGS

•As a complete protein, eggs combine with incomplete proteins to yield the eight essential amino acids the body needs for growth and repair (cheese, grains, legumes, etc.).

•To reduce the cholesterol intake of egg consumption, two egg whites can be substituted for one whole egg. For example, when preparing French toast, two egg whites may be substituted in the batter for one whole egg.

•Remember that in many recipes one egg is stretched over six to eight servings. Therefore, the consumption of saturated fat is reduced when portion sizes are considered.

•Eggs should be cooked at a low temperature to prevent a tough and leathery texture. Overcooking and overheating may cause curdling.

•To reduce calories when frying or scrambling eggs, use a nonstick skillet, or spray pans with vegetable cooking spray.

•To prevent curdling when using eggs to thicken liquid, combine a small amount of the hot liquid with the egg first, then pour egg mixture into the pan.

•A grayish-green ring around the yolk of a hard-boiled egg is not a sign of spoiling, although it is unattractive. The ring may be caused by the combining of the sulfides in the egg white with the iron in the egg yolk at high temperatures. It may also develop when eggs are precooked and held. (Scrambled eggs sometimes have this effect.) This unpleasant color is prevented by rapid cooking at moderate heat.

• The most common ways eggs are used in cooking:
Emulsifier - In sauces or mayonnaise, eggs help liquid fats combine with nonfatty liquids to form a uniform suspension. The key to emulsion is to mix eggs with other ingredients and slowly add the liquid fat while stirring.
Thickener - Eggs can be used to thicken liquid mixtures since the proteins coagulate when heated. This use is found in custards, sauces, fillings, gravies, puddings, quiches. One egg thickens to the equivalent of one tablespoon flour 1½ teaspoons cornstarch.
Binder - Eggs are used to hold ingredients together in food products such as meat loafs and casseroles. This is due to the coagulation of egg protein.
Leavener - The air produced when eggs are beaten acts as a leavening agent in recipes. Beaten egg whites hold more air than whole eggs. As a result, food products such as meringues, souffles, or omelets require separating the eggs into whites and yolks and whipping the egg whites until foamy before combining. Eggs may also be used to hold together coatings, produce browning, retain moisture, and improve tenderness and flavor in baked products.

## Teaching Aid 6

# POINTS TO PONDER ABOUT LEGUMES, NUTS, AND SEEDS

- Legumes include beans, peas, peanuts, and soybeans. Legumes are composed primarily of carbohydrates but are relatively low in fat, containing an average of 190 calories in a one-cup serving. Legumes are a meat alternate, containing many of the nutrients found in red meats.

- Legumes provide complete protein (high-quality) when eaten in combination with animal sources of protein such as milk, cheese, small amounts of meat, or cereal grain. [NOTE TO TEACHER: See Student Activity 2: Mission Completion for examples of these combinations.]

- Legumes are used in many favorite regional foods, such as pinto beans in Tex-Mex cooking, red kidney beans combined with rice in the Southeast and chili in the Southwest, and Boston baked beans in the Northeast. Split peas, lentils, or blackeyed peas are prepared in delicious soups.

- Soybeans are extremely high in protein content and are available in a variety of forms, such as dry soybeans, lowfat soy grits, whole-fat soy flour, soy milk.

- Legumes should be stored in a cool, dry place in an airtight container to prevent contact with moisture, dirt, or insects.

- Seeds are a nutritious snack food, especially without added salt. Seeds such as pumpkin, sesame, and sunflower supply B-vitamins as well as iron, calcium, and copper.

- Nuts are high in vegetable fat content and caloric value. Calories range from six to 15 per nut. Ten peanuts equal approximately 60 calories. This is about the same number as one cup of strawberries or two cups of green beans. Dry-roasted nuts are roasted without any added fat or oil. Once nuts are removed from the shell, they should be stored in the freezer to retain flavor.

# LEGUME COOKERY

STEP I

Boil for 5 minutes
(ratio beans to water 1:3).

STEP II

Soak 2 hours or over night.

STEP III

Simmer until tender (2-3 hr.)
or pressure cook 30 minutes,
then simmer uncovered for
few minutes

## Teaching Aid 8

# WHAT DO YOU KNOW ABOUT MEAT AND LEGUMES?

**TRUE AND FALSE**

**Directions:** In Items 1-8, circle T if the statement is True. Circle F if the statement is False.

T F 1. Meat is the only source of complete proteins.

T F 2. Eating the proper combination of plant proteins can supply the body with all the essential amino acids.

T F 3. Fish (except for shellfish) have a lower cholesterol content than red meats.

T F 4. Vegetable proteins contain polyunsaturated fats.

T F 5. Eggs should be cooked over high heat to prevent a decrease in nutritive value.

T F 6. In poultry and fish, light meat has more calories than dark meat.

T F 7. Meat with fat has a higher nutrient density than meat without fat.

T F 8. Complete proteins contain all of the amino acids which cannot be synthesized by the body.

**MULTIPLE CHOICE**

**Directions:** In Items 9-16, write the letter of the best response to each statement in the blank to the left of the item.

_____ 9. The body can use iron from meat most efficiently when it is eaten with a good source of
A. carbohydrates.
B. minerals.
C. vitamin $B_{12}$.
D. vitamin C.

_____ 10. The recommended number of servings and serving sizes for meat and legumes are
A. 2 3-oz. meat, ½ to ¾ cup cooked legumes.
B. 2 3-oz. meat, ¾ to 1 cup cooked legumes.
C. 3 4-oz. meat, ½ to ¾ cup cooked legumes.
D. 3 4-oz. meat, ¾ to 1 cup cooked legumes.

_____ 11. The number of essential amino acids is
A. four.
B. eight.
C. eleven.
D. twenty-two.

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_____ 12. A fatty acid has as many hydrogen atoms as possible on its molecule chain is
A. cholesterol.
B. complete fat.
C. saturated fat.
D. ploysaturated fat.

_____ 13. The most important minerals in meat are
A. calcium and iron.
B. iron and riboflavin.
C. phosphorus and iron.
D. riboflavin and calcium.

_____ 14. The source of protein with the highest fat content per ounce is
A. chicken.
B. lamb.
C. nuts.
D. shellfish.

_____ 15. Seeds are an excellent source of
A. B-Vitamins, iron, protein.
B. fat, iron, vitamin $B_{12}$.
C. iron, protein, thiamine.
D. protein, vitamin D, and copper.

_____ 16. Cholesterol is found in the following
A. Beans, cheese, eggs, and milk
B. Beef, eggs, pork and shellfish
C. Beans, eggs, fish, and nuts
D. Fish, legumes, milk, and pork

**MATCHING**

**Directions**: In Items 17-20, match the foods with the functions of eggs by writing the correct letter in the blank.

| FOODS | FUNCTIONS OF EGGS |
|---|---|
| _____ 17. Meat loaf | A. Binder |
| _____ 18. Chocolate pudding | B. Emulsifier |
| _____ 19. Mayonnaise | C. Leavener |
| _____ 20. Angel food cake | D. Tenderizer |
| | E. Thickener |

**Directions**: In Items 21-25, match each food with the type of protein by writing the correct letter in the blank.

| FOODS | TYPES OF PROTEINS |
|---|---|
| _____ 21. Macaroni and cheese | A. Complete protein |
| _____ 22. Bean taco and hot sauce | B. Incomplete protein |
| _____ 23. Plain omlet and English muffin | |
| _____ 24. Spaghetti and tomato sauce | |
| _____ 25. Refried beans and cheese | |

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## Answer Key Teaching Aid 8

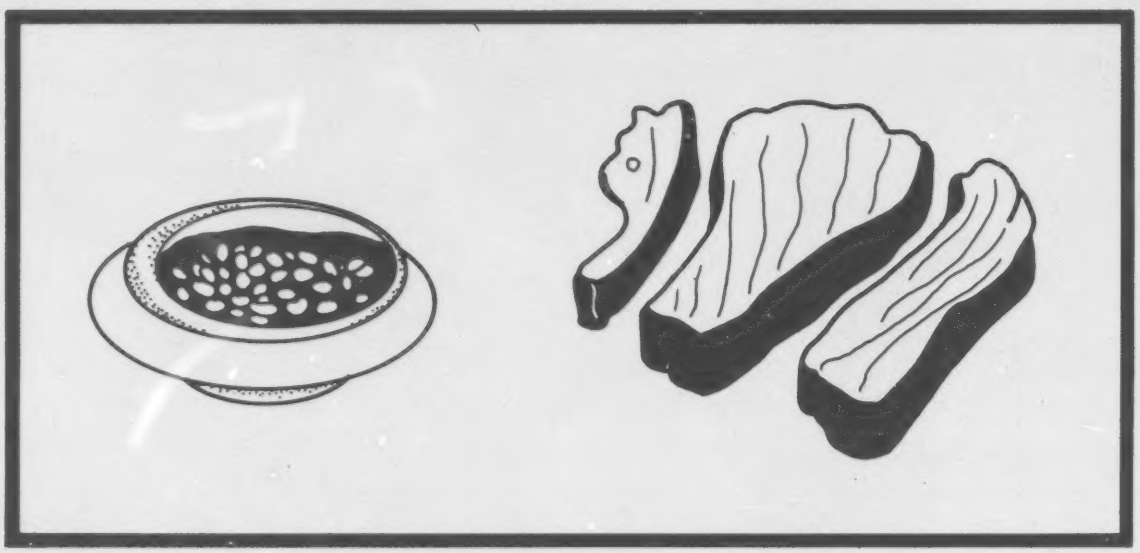
# WHAT DO YOU KNOW ABOUT MEAT AND LEGUMES?

1. F
2. T
3. T
4. T
5. F
6. F
7. F
8. T
9. D
10. A
11. B
12. C
13. B
14. C
15. A
16. B
17. A
18. E
19. B
20. C
21. A
22. B
23. A
24. B
25. A

## Answer Key Student Activity 1

# MEAT AND LEGUMES[1]

**DIRECTIONS**
Complete the blanks in the information about meat and legumes.



**HOW MUCH FOR YOU?**
Two servings daily

**WHAT'S A SERVING?**
Sources include: beef, veal, lamb, pork, poultry, fish, shellfish (shrimp, oysters, etc.) organ meats (liver, kidneys, etc.) dry beans or peas, soybeans, lentils, eggs, seeds, nuts, peanuts, and peanut butter.

**Serving Size**
- Lean cooked meat, poultry or fish – 2-3 ounces
- Eggs (scrambled, fried, hard/soft cooked, poached – 1
- Dry beans or dry peas, soybeans, or lentils – ½ - ¾ cup cooked
- Peanut butter – 2 tablespoons

[1]Modified form Food (USDA), p.9.

**WHAT'S IN IT FOR YOU?**

| Nutrient | Function |
|---|---|
| Protein | makes up part of all body cells<br>helps build and repair body cells<br>promotes growth<br>provides energy<br>helps form enzymes, some hormones, and antibodies |
| Mineral | |
| Phosphorus | teams up with calcium to make strong bones and teeth<br>helps cells produce energy and the body use nutrients |
| Iron | carries oxygen in the blood |
| Vitamins | |
| Vitamin $B_6$ | helps body use protein<br>needed for growth and maintenance of body functions |
| Vitamin $B_{12}$ | promotes normal development of red blood cells<br>aids healthy functioning of all cells |

## Answer Key Student Activity 2

# MISSION: COMPLETION

1. Macaroni/cheese
   Cereal/milk
   Dried peas/lentil soup (milk)
   Baked beans/ground beef
   Rice/red beans
   Tortilla/refried beans/cheese
   Noodles/chicken
   Refried beans/cheese
2. Complete proteins–proteins from animal sources (cheese, milk, eggs, meat)
3. Incomplete proteins–protein from plant sources (macaroni, legumes, breads, noodles)
4. Complete proteins contain all essential amino acids while incomplete proteins are deficient in one or more of the essential amino acids.

## Answer Key Student Activity 3

# IT'S ALL IN THE CUT OF THE MEAT

1. a. Lean only. No fat means less calories.
   b. Lean and fat
   c. Lean only
   d. No. Little or no protein is contained in the fat.
2. a. Lean with 10% fat. More protein for less calories.
   b. Lean with 21% fat
   c. Lean with 21% fat. More animal fat means more cholesterol.
3. a. Lean and fat
   b. Lean and fat
   c. Lean only in terms of nutrient density
4. a. Round steak. Meat grades are determined partly by fat content.
   b. Round steak
   c. Round steak
   d. Less tender cuts of meat require different preparation methods.
5. a. Sirloin steak
   b. Sirloin steak. Lowest amount of fat
   c. Pork chop. Higher amount of animal fat
6. a. Poultry
   b. Answers will vary.
7. a. Perch. It is breaded and fried; both add fat calories.
   b. Perch which is breaded and fried
   c. Method of preparation affects both caloric value and fat content.
   d. Perch. Greater amount of fat
8. Bacon and Swiss cheese both contain 8 g.of fat; the chicken drumstick has 4 g.

## Answer Key Student Activity 4

# A CHICKEN IN EVERY POT

| Poultry | Calories | Protein (g) | Fat (g) |
|---|---|---|---|
| Breast fried w/ bone 3.3 ounces | 155 | 25 | 5 |
| Breast broiled w/ flesh only 3 ounces | 115 | 20 | 3 |

**COOKING TIPS FOR POULTRY**

- Removing the skin from poultry when cooking it will help to reduce calories. Approximately 20 calories per serving will be removed.

- Using white meat (breasts) rather than dark meat (thighs, legs) will reduce calories. Compare one cup of chopped light meat without skin (232 calories) with one cup of chopped dark meat without skin (246 calories).

- Use moderate heat for cooking poultry. This helps reduce shrinking, drying, and loss of B-vitamins.

- The method of preparation can aid in reducing fat and calories. Fry-broil, bake, or stir-fry instead of frying in deep fat!

**ADVANTAGES OF POULTRY PRODUCTS**

- Low calorie
- Low-fat
- High in protein
- High nutrient density
- Poultry is a nutritious food choice, relatively low in fat and packed with protein. You receive as much food energy from four fried chicken drumsticks as one slice of lemon meringue pie. Just think what a more nutritious choice those drumsticks would be! The nutrient density of chicken is much higher than the nutrient density of lemon meringue pie.

Lemon meringue pie – 360 calories
Fried chicken – 350 calories

90

## Answer Key Student Activity 5

# FISHY FACTS

•Some fish is low in fat, some is high in fat. How can you tell the difference?

Low-fat (1% to 5% fat) – fish that is firm, mild-flavored and has white flesh.
High-fat (5% to 35% fat) – fish that has darker, richer flesh and a stronger flavor. Shellfish are high in cholesterol.

•Compare the calories of one serving of the meats below. Fish is a low-calorie choice.
Pork chop (3.5 oz.) – 260 calories
Pot roast (3 oz.) – 245 calories
Bluefish (3 oz.) – 135 calories

**Fish Cookery**
•Avoid overcooking, which toughens and dries out the flesh. Fish needs only a short cooking time (5-10 minutes for broiling or 25 minutes for baking.)

•Test for doneness by flaking flesh with fork times.

•Preparation affects caloric value. Broiling, baking, poaching, steaming, or oven-frying results in lower caloric content than deep-fat or pan frying.

•Fresh fish should be refrigerated immediately and used within 24 hours. Fish may be wrapped in freezer wrap and frozen for up to three months.

•Frozen fish is thawed in the refrigerator allowing 24 hours for one pound of fish. The process may be speeded up by immersing the package in cold water. Use immediately (not longer than 24 hours of storage in the refrigerator) after thawing.

## Answer Key Student Activity 6

# GET EGG-CITED

**NUTRITION**

•Source of complete protein. One serving (one egg) provides the eight essential amino acids needed by the body.

•The egg is packed with nutrients and contains only 80 calories. It supplies 13 minerals and all vitamins except vitamin C. Egg white is a rich source of riboflavin. The egg yolk is high in vitamins A and E, and iron.

•Egg yolks are high in saturated fat. To lower cholesterol intake, people are often medically advised to limit consumption of whole eggs.

**STORING**

•To maintain freshness, store eggs in original containers. Eggs should be packed and stored with the large end up.

•Never wash eggs. Washing may reduce quality by breaking down the shell's natural protein quality and allowing bacteria to enter.

•Eggs which have been broken remain fresh in a covered plastic container in the refrigerator for one to two days with enough water to cover. Pour off water before using. Egg whites can be frozen for later use. Ice cube trays are convenient containers for freezing individual egg whites.

**COOKING**

•Eggs can be used in cooking to:
Emulsify
Thicken
Bind
Leven

## Dietary Guideline 1:

# EAT A VARIETY OF FOOD

## G. Vegetable and Fruit Group

**OBJECTIVES**

When the students complete this lesson, they should be able to: Identify major food sources and nutrient contributions of vegetables and fruits. Explain principles for selection of vegetables and fruits. Explain fruit and vegetable cookery techniques for preservation of nutrients. Determine ways to decrease the intake of calories when using vegetables and fruits in the daily diet. Analyze different methods of preparing vegetables and fruits. Analyze food myths relating to vegetables and fruits. Prepare foods using vegetable and fruit cookery techniques.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Vegetable and Fruit Group |
| Teaching Aid 2: | Points to Ponder About Vegetables and Fruits |
| Teaching Aid 3: | Getting Your Money's Worth When Buying Vegetables and Fruits |
| Teaching Aid 4: | Which Fruit Form is Your Choice? |
| Teaching Aid 5: | What Do You Know About Fruits and Vegetables? |
| Student Activity 1: | Vegetable and Fruit Group |
| Student Activity 2: | Tips for Vegetable and Fruit Preparation |
| Student Activity 3: | How Will You Handle These Vegetables and Fruits? |
| Student Activity 4: | Decisions, Decisions–Which Form Do You Choose? |
| Student Activity 5: | Chart the Effect of Cooking Methods in Vegetable Preparation |
| Student Activity 6: | Chart the Effect of Cooking Methods in Fruit Preparation |
| Media Resource 1: | Eat Well, Be Well:<br>Crunchy Apple Cobbler<br>Hot Fruit Medley<br>Scalloped Potato Casserole<br>Broc in a Wok<br>Ribollito Soup |

**KEY WORDS**

ascorbic acid
calories
carotene
chlorophyll
complex carbohydrates
fat-soluble
nutritive value
reconstituted
ripen
water-soluble

## INTRODUCTION

From a basket or grocery bag labeled "It's Deliciously Different," draw an unusual a fruit or vegetable and write the name in the correct column (fruit or vegetable) on the board. [NOTE TO TEACHER: Use pictures instead of actual fruits and vegetables if they are unavailable. Point out that these foods are members of the vegetable and fruit group, and are excellent sources of vitamins and minerals as are their more common cousins.] Which fruits and vegetables have you tried? How was each prepared? Possible vegetables and fruits to identify are:

Vegetables: turnip, rutabaga, eggplant, winter squash, banana squash, cauliflower, zucchini, broccoli, rhubarb

Fruits: mango, kivi, kumquat, honeydew melon, pineapple, coconut, papaya.

## SUGGESTED ACTIVITIES

- Refer to Student Activity 1: Vegetable and Fruit Group. Identify sources of vegetables and fruits, servings recommended daily, and major nutrient contributions. [NOTE TO TEACHER: Use Teaching Aid 1: Vegetable and Fruit Group and Teaching Aid 2: Points to Ponder About Vegetables and Fruits to stimulate class discussion.]
- Describe the characteristics to look for when selecting vegetables and fruits. View the transparencies, Teaching Aid 3: Getting Your Money's Worth When Buying Vegetables and Fruits, to identify the qualities to look for when selecting vegetables and fruits.
- Discuss preparation of vegetables and fruits for greatest conservation of nutrients. Refer to Student Acitvity 2: Tips for Vegetable Preparation and Fruit Preparation to stimulate discussion. [NOTE TO TEACHER: Use Teaching Aid 2: Points to Ponder About Vegetables and Fruits. Point out that the method of storage affects nutrient retention, also. For example, vitamin C is lost because of the following: 1) oxygen–The more surface area exposed, the greater the vitamin loss 2) overripening–Don't leave fruit or vegetables in direct sunshine or warm places. 3) peeling–Vegetables and fruits with skins retain vitamins longer than those with exposed surfaces.]
- Complete Student Activity 3: How Will You Handle These Vegetables and Fruits? to apply the principles of vegetable and fruit selection, storage, and preparation.
- View the transparency, Teaching Aid 4: Which Fruit Form Is Your Choice?, and discuss the different fruit products available in the supermarket. Discuss reasons you might choose one form of the fruit over another. [NOTE TO TEACHER: Possible factors to point out are: values, time, convenience, cost, likes and dislikes, weight control, or hunger satisfaction.] Complete Student Activity 4: Decisions, Decisions-Which Form Do You Choose? Use a "Nutritive Value of Foods" chart (found in the appendices of nutrition textbooks) to complete the activity. Discuss the choices you make and analyze possible reasons why your choices may have been different from your classmates. Possible discussion questions might include:
  - When is it better to serve raw fruits rather than cooked fruits?
  - What factors influence your decision to eat a certain form of fruit?
  - What are the prices of different forms of your favorite fruits?
  - How do their nutritive values and food energy compare?
  - What is the difference between "fresh," "concentrated," and "reconstituted" juices? What is the difference between fruit drink and fruit nectar? Which of the products contains the highest amount of sugar?
- Conduct a lab experiment to analyze factors affecting the color, texture, and taste of cooked vegetables. Use the following:
  - green (chlorophyll)–spinach, broccoli
  - red or orange (carotene)–red cabbage, carrots.
- Cook each vegetable until fork-tender using one of the following methods:
  - in a covered pan
  - in an uncovered or loosely covered pan
  - in an uncovered or loosely covered pan with ½ teaspoon vinegar added to the water.
  - in an uncovered or loosely covered pan with ½ teaspoon baking soda added to the water.

• Use Student Activity 5: Chart the Effect of Cooking Methods in Vegetable Preparation to determine the effect of the method of cooking when fork-tender. Continue cooking until done and compare the texture, flavor, and color. Discuss the following questions:

What happens to the color of vegetables cooked by the following methods?
- covered
- uncovered or loosely covered
- with vinegar added
- with soda added

What changes occur in the texture of vegetables cooked by the following methods?
- covered
- uncovered or loosely covered
- with vinegar added
- with soda added

How is the taste of vegetables affected by the following cooking methods?
- covered
- uncovered or loosely covered
- with vinegar added
- with soda added

• Use Student Activity 6: Chart the Effect of Cooking Methods in Fruit Preparation to determine the effects of various methods of cooking. Discuss the following questions:

What happens when fresh fruits are handled by the following methods?
- Peel and slice one hour before serving.
- Peel and slice a few minutes before serving.
- Peel, slice, and dip in or sprinkle with citrus juice one hour before serving.
- Peel, slice, and dip in or sprinkle with citrus juice a few minutes before serving.

How is the color of fruits affected when cooked by the following methods?
- Rapidly heat fruit which has not been refrigerated.
- Slowly heat fruit which has not been refrigerated.
- Rapidly heat fruit wich has been refrigerated.
- Slowly heat fruit which has been refrigerated.

How is the texture of fruit affected when it is cooked by the following methods?
- Cook a short time in water.
- Cook a long time in water.
- Cook a short time with sugar.
- Cook a long time in sugar syrup.

How is the flavor of fruit affected when cooked by the following methods?
- Cook quickly in sugar.
- Cook a long time in sugar syrup
- Cook quickly in water, then add sugar.
- Cook a long time in water, then add sugar.

How is the vitamin C content of fruit affected when cooked by the following methods?
- Cook a short time.
- Cook a long time.

How are the color, aroma, and flavor of fruit affected when cooked by the following methods?
- covered
- uncovered.

• List common beliefs associated with vegetables and fruits. Talk to parents, grandparents and peers; and read popular magazines and other media to collect myths and fallacies. Study references to determine whether the beliefs are true or false. [NOTE TO TEACHER: Examples of common myths associated with vegetables and fruits include:
- Adequate protein can be obtained easily from vegetables and fruits.
- Vegetable juices are more nutritious than vegetables.
- Such foods as grapefruit and other acid sources will help you reduce weight by melting fat cells.

Frozen, canned, and fresh orange juice have the same nutritive value.
Grapes are good for curing ulcers of the stomach.
Very large amounts of vitamin C will ward off colds.
Very large amounts of vitamin E will make you look young again.
An apple a day keeps the doctor away.
To reduce weight, eliminate bread and potatoes.]

## Teaching Aid 1

# POINTS TO PONDER ABOUT VEGETABLES AND FRUITS

**HOW MUCH FOR YOU?**

Four servings daily. Includes one good source of vitamin C each day. Frequently include dark green or deep yellow vegetables for vitamin A, and unpeeled fruits and vegetables or those containing edible seeds, such as berries, for fiber.

**WHAT'S A SERVING?**

A serving from this group includes all vegetables and fruits. Count one-half cup as one serving, or a typical portion such as:
1 medium fruit, such as an orange or apple
2 small fruits, such as 2 plums
one-half medium grapefruit or cantaloupe
one-half cup fruit juice
one cup tossed salad or raw fruits and vegetables
1 medium potato
one-half cup cooked or canned vegetable

## WHAT'S IN IT FOR YOU?

| Nutrient | Function |
|---|---|
| **Vitamins** | |
| Vitamin A<br>(fat-soluble)<br>source: dark green and<br>deep yellow vegetables | promotes vision in darkness<br>helps resist infection<br>promotes healthy skin and hair<br>promotes growth |
| Vitamin C<br>(water-soluble)<br>source: dark grean, leafy vegetables<br>citrus fruits, melons, berries, and tomatoes | helps wounds heal<br>helps fight infection<br>promotes strong gums and teeth<br>helps hold body cells together |
| **Minerals** | |
| Calcium<br>source: dark green leafy vegetables<br>such as collards, kale, mustard, and<br>turnip greens | builds strong bones and teeth<br>helps blood to clot |
| Iron<br>source: dark green leafy vegetables | carries oxygen in the blood<br>helps form red blood cells<br>prevents some types of anemia |
| **Carbohydrates** | |
| source: raw fruits and vegetables | provides energy<br>provides fiber to aid in digestion<br>and elimination |

## DIETARY CONTRIBUTIONS

• Vegetables and fruits are important for their contributions of vitamins A and C, but individual foods in this group vary in the amounts of these vitamins they provide.

• Dark green and deep yellow vegetables are good sources of vitamin A. Carotene, a provitamin A, is found in dark green and deep yellow vegetables. A provitamin is a substance which can be changed to a vitamin by the human body. The provitamin yellow carotene is converted to vitamin A in the body. Yellow carotene occurs not only in deep yellow vegetables but also in red and deep green foods. The best foods for vitamin A are deep green, leafy vegetables and deep yellow vegetables and fruits. A carrot does not contain vitamin A, but it does contain carotene, the provitamin A, which the body converts to vitamin A.

• Vitamin A is fat-soluble and therefore not soluble in water. The body stores additional fat-soluble vitamins in the liver and other tissues. If the amount gets too great, harmful effects result; overloading your body with vitamins is referred to as megadosing. Large doses of vitamin E may keep vitamin A from functioning properly. Side effects of too much vitamin A include headaches, dizziness, and blurred vision.

• Most dark green vegetables are also reliable sources of vitamin C if they are not overcooked. The best sources of vitamin C include citrus fruits (oranges, grapefruit, lemons, tangerines), melons, berries, and tomatoes. Approximately 90 percent of the vitamin C in our diets must come from vegetables and fruits. The less common name for vitamin C is ascorbic acid.

• Vitamin C is a water-soluble vitamin and is not stored in the body, so some sources of vitamin C are needed in your diet every day. Vitamin C is fragile and easily lost during preparation. It is destroyed by heat, exposure to air, and large amounts of water. One orange per day contains adequate vitamin C to supply the RDA for most teens.

• Dark green vegetables are also sources of riboflavin, folacin, iron, and magnesium. Certain greens, such as collards, kale, mustard, and turnip, provide calcium. Vegetables and fruits are second to milk as a good source of calcium.

• Raw vegetables and fruits (especially the skins and seeds) provide fiber to aid in digestion and elimination. Vegetables and fruits, such as potatoes and apples, also provide complex carbohydrates. In contrast to the most refined sugars or simple carbohydrates found in table sugar, candy, or honey, fruits are a natural sweetener without the addition of refined sugars.

## TIPS FOR VEGETABLE PREPARATION

• Cook vegetables in a pan with a tight-fitting lid and decrease cooking time to prevent the loss of water-soluble vitamins.

• Cook most vegetables only until fork tender.

• Cook vegetables using the least amount of liquid possible to conserve water-soluble vitamins. Steam if possible.

• Start cooking vegetables in boiling water, then reduce to simmer.

• Leave skins on vegetables if possible since the skins are a good source of fiber. In addition, many nutrients are concentrated under the skin of a vegetable, and deep paring can cause a loss of nutrients.

• Leave vegetables in large pieces so less surface area is exposed to prevent loss of nutrients.

• Save juices from cooked vegetables and use in gravies, sauces and soups.

• Use leftover vegetables in casseroles, soups, stews, or salads. Remember that holding and reheating cooked vegetables causes additional loss of nutrients, especially vitamin C.

• Short cooking time helps to retain color. The longer vegetables are cooked, more of the rich color they lose. Fresh cooked vegetables should look bright and colorful when they are served.

Remember: Some nutrients dissolve in water and others are destroyed by heat. Vegetables should be cooked quickly in a small amount of liquid until tender and crisp.

## TIPS FOR FRUIT PREPARATION

- Use fruits as natural sweeteners. Refined sugar may be reduced when using fruits since they are naturally sweet. Avoid adding sugar to the fruit whenever possible.

- Dried fruits are a nutritious snack choice. They are a source of natural sugars and are lower in calories than most commercial snack foods. Remember, one piece of dried fruit is actually one-half or more of a whole piece of fruit which has been dehydrated. Apricots, raisins, peaches, and apples are popular dried fruits. Raisins are a good source of iron.

- When possible, leave the skin of fruit on. The fruit close to the skin is packed with nutrients and the skin provides fiber.

- Leave fruits in large pieces so less surface area is exposed. Exposure to air destroys nutrients.

- Dip noncitrus fruits, like apples, pears, and bananas, in citrus juice to prevent darkening. Orange juice, lemon juice, or grapefruit juice are often used.

- Rapidly heating some fruits, like strawberries and cherries, after they have been refrigerated causes fruit to loose its color. Strawberries, for example, become pale pink. Heat slowly so the berries keep their bright color.

- The texture of fruit is changed by cooking. Cooking breaks down the fiber in the fruit. To retain the shape of fruit, cook with sugar using low heat. This procedure softens the fruit before the sugar is added.

- Fruit flavors usually change slightly by cooking. They become more mellow and less sharp and acid-tasting. A few fruits, such as strawberries and cherries, develop an off-flavor when cooked too long in a sugar syrup. These fruits should be quickly cooked in sugar rather than syrup.

- Fruits containing vitamin C should be cooked for as short a time as possible. Heat and exposure to air destroy vitamin C.

- The color, aroma, and flavor of fruit are preserved by cooking the fruit in a covered pan.

## Teaching Aid 2

# GETTING YOUR MONEY'S WORTH WHEN BUYING FRUITS

**FRUITS**

Is it firm and shiny?

Does it smell naturally sweet, not over-ripe or sour?

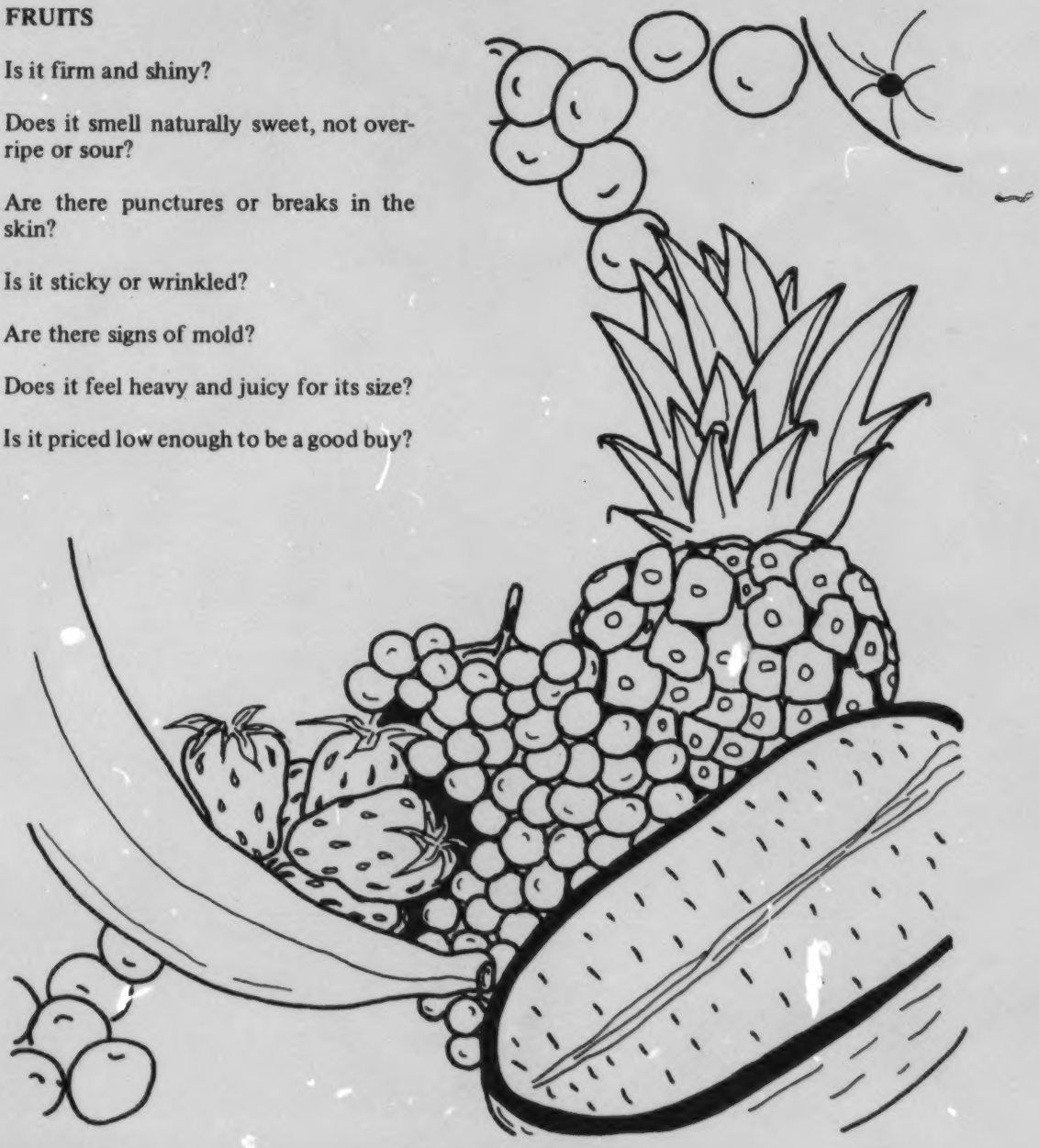
Are there punctures or breaks in the skin?

Is it sticky or wrinkled?

Are there signs of mold?

Does it feel heavy and juicy for its size?

Is it priced low enough to be a good buy?



## Teaching Aid 3

# GETTING YOUR MONEY'S WORTH WHEN BUYING VEGETABLES

**VEGETABLES**

Does it look good? Is it an appropriate color?

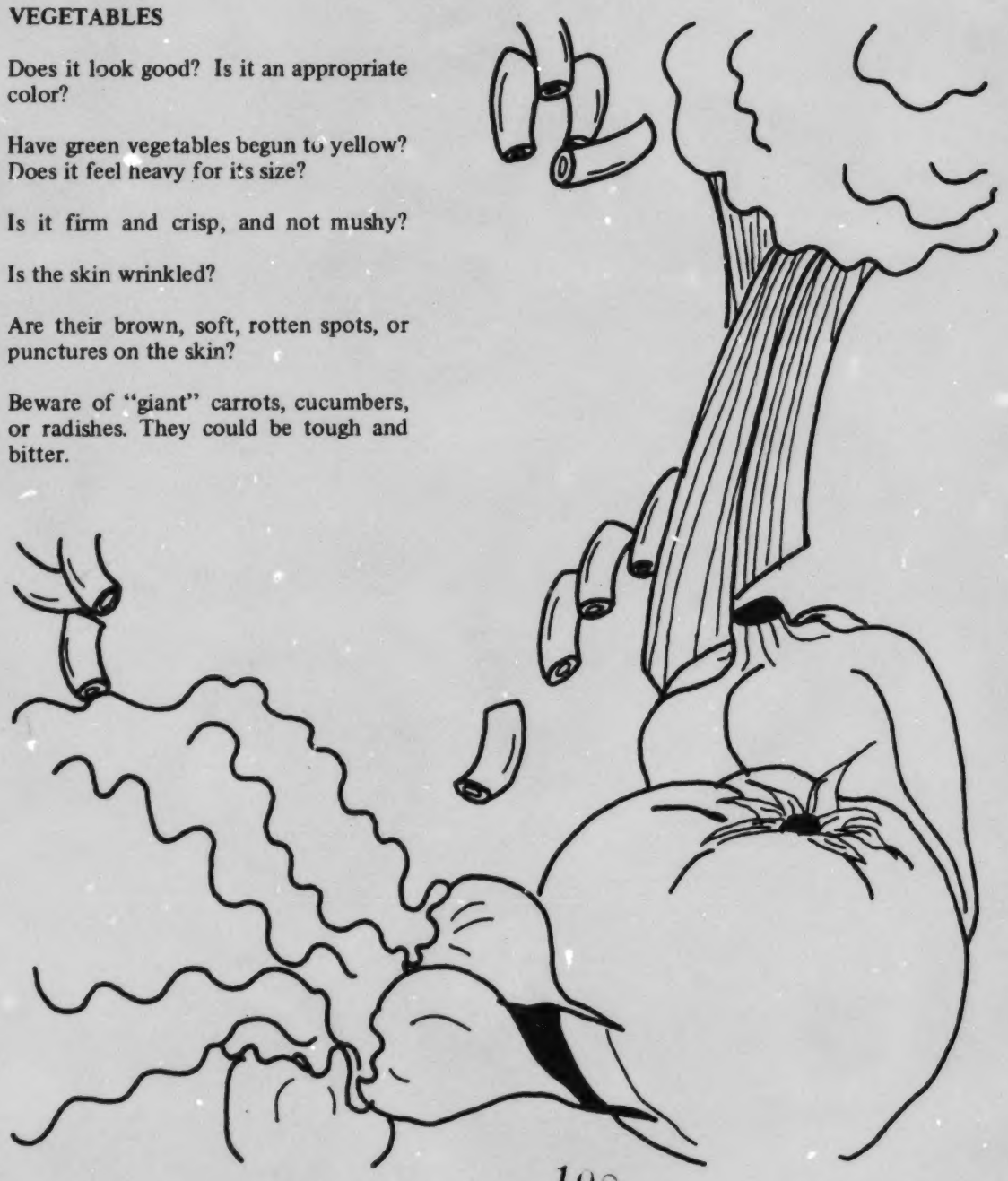
Have green vegetables begun to yellow? Does it feel heavy for its size?

Is it firm and crisp, and not mushy?

Is the skin wrinkled?

Are their brown, soft, rotten spots, or punctures on the skin?

Beware of "giant" carrots, cucumbers, or radishes. They could be tough and bitter.



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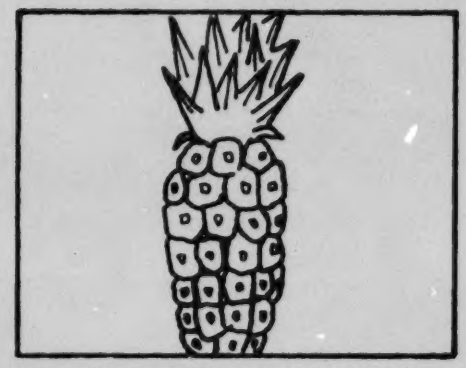
## Teaching Aid 4

# WHICH FORM IS YOUR CHOICE?

Many processed food products are available in the supermarket. Think of the many different ways you can buy fruits and vegetables.
Take a look at the pineapple:



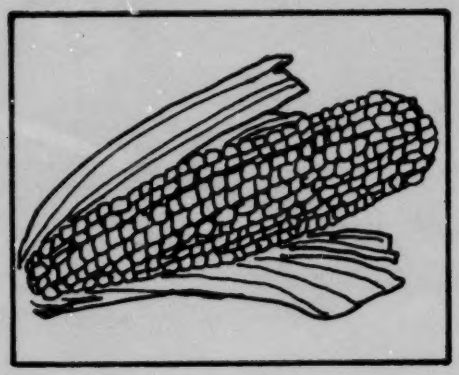
½ cup fresh pineapple, diced, 40 calories

8 ounces canned pineapple juice, unsweetened, 140 calories

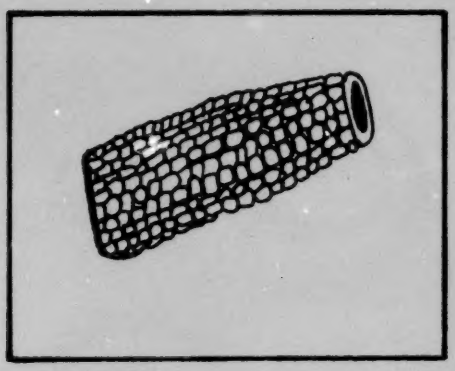
2 slices canned pineapple, packed in syrup, 160 calories

2 slices canned pineapple, packed in own juice, 90 calories

Take a look at corn:

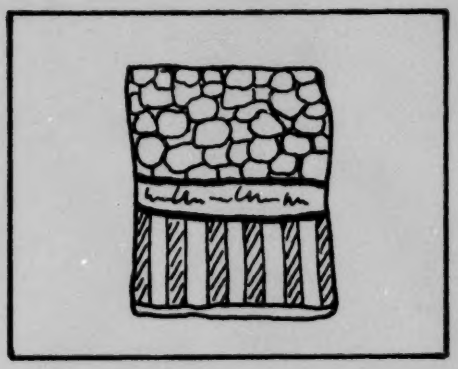


on cob-fresh
170 calories

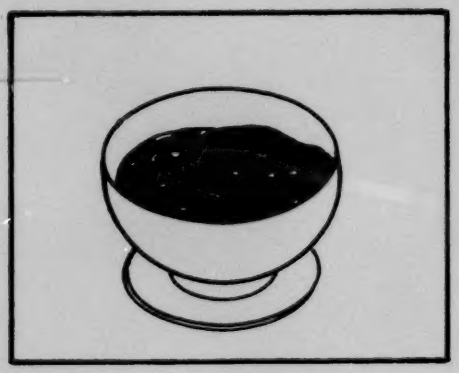


on cob-frozen
120 calories

kernels-canned
175 calories



kernels -frozen
130 calories



creamed
210 calories

## Teaching Aid 5

# WHAT DO YOU KNOW ABOUT VEGETABLES AND FRUITS ?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle the T if the statement is True. Circle the F if the statement is False.

T F 1. Eating a well-balanced diet based on the Daily Food Guide will supply most teenagers with adequate amounts of vitamins and minerals.

T F 2. Vitamin C is important in promoting healthy skin and hair and preventing anemia.

T F 3. Many nutrients found in vegetables are destroyed when exposed to air and/or water.

T F 4. Adding one teaspoon vinegar to vegetables when cooking causes their color to become brighter.

T F 5. Fresh vegetables and fruits that are peeled and cooked have less nutritive value than when served raw.

**MULTIPLE CHOICE**

**Directions:** For Items 6-12, write the letter of the best response in the blank to the left of the item.

_____ 6. To add the most fiber to your diet, eat
A. broccoli, carrots, and parsnips.
B. oranges, bananas, and tomatoes.
C. potatoes, turnips, and rutabages.
D. berries, summer squash, and zucchini.

_____ 7. To cook vegetables properly, be sure to
A. use low heat.
B. cover them with water.
C. add soda to brighten color.
D. use a covered pan.

_____ 8. Because it is water-soluble, you should include one good source of which of the following each day?
A. Calcium
B. Iron
C. Vitamin A
D. Vitamin C

_____ 9. The substances in fruits and vegetables which create color are
A. ascorbic acid and enzymes.
B. carotene and chlorophyll.
C. oxygen and enzymes.
D. vinegar and soda.

_____ 10. A good method of cooking vegetables to prevent loss of nutrients is to
A. cover with chicken broth and boil.
B. baste with butter and broil.
C. dip in batter and fry.
D. cut into large pieces and steam.

_____ 11. To prevent fruit from turning brown
A. cover it with water until used.
B. dip in sugar water and drain.
C. sprinkle with an ascorbic acid.
D. wrap in plastic wrap until used.

_____ 12. Which of the following has more natural nutritive value?
A. One cup of bottled orange drink.
B. One cup of fresh orange juice.
C. One cup of powdered orange drink.
D. One cup of frozen orange juice.

**MATCHING**

**Directions**: For Items 13-20, match the vegetable or fruit with the nutrient with which it is most often associated by writing the correct letter in the blank. Some items in the nutrients list will be used more than once; other items may not be used at all.

| VEGETABLES AND FRUITS | NUTRIENTS |
|---|---|
| _____ 13. Carrots | A. Fat |
| _____ 14. Spinach | B. Calcium |
| _____ 15. Potatoes | C. Carbohydrates |
| _____ 16. Tomatoes | D. Vitamin A |
| _____ 17. Oranges | E. Vitamin C |
| _____ 18. Turnip greens | |
| _____ 19. Strawberries | |
| _____ 20. Apple | |

## Answer Key Teaching Aid 5

# WHAT DO YOU KNOW ABOUT VEGETABLES AND FRUITS ?

1. T
2. F
3. T
4. F
5. T
6. D
7. D
8. D
9. B
10. D
11. C
12. B
13. D
14. B
15. C
16. E
17. E
18. B
19. E
20. C

## Answer Key Student Activity 3

# HOW WILL YOU HANDLE THESE FRUITS AND VEGETABLES?

1. B. Exposure to air causes the cut surface area of fruits to turn brown. The ascorbic acid in citrus fruit juice prevents browning.

2. B. Whenever possible, leave the skin on fruits for greater nutrition. Eat the fruit without slicing to prevent the fruit's surface from being exposed. Exposure to air can destroy nutrients.

3. A. Some nutrients dissolve in water. Other nutrients are destroyed by heat. Cook vegetables quickly until tender yet crisp in as small an amount of water as possible.

4. C. Use leftovers in casseroles, soups, or stews. Reheating cooked vegetables causes additional loss of nutrients.

5. B. is the best choice. Steaming is an excellent preparation method for vegetables in order to retain nutrients. A. is the next best choice. The less heat a vegetable is exposed to, the fewer nutrients are lost.

6. B. Juices from cooked vegetables contain nutrients which are a nutritious addition to gravies, sauces, and soups.

7. A. Exposure to air causes some fresh vegetables to become limp. Storing vegetables in an airtight container helps retain their crisp texture.

8. C. Overripening of fruits causes nutrient loss. By storing fruits in an airtight container in the refrigerator, nutrient loss is halted.

## Answer Key Student Activity 4

# DECISIONS, DECISIONS - WHICH FORM DO YOU CHOOSE?

1. B

2. Syrup-packed = 48 calories
   water-packed = 37 calories  A savings of 11 calories.

3. Grapefruit = 50 calories
   Grapefruit juice = 95 calories
   A. The grapefruit
   B. The grapefruit juice
   C. The grapefruit

4. C. 6 oz. grape juice = 135 calories, 6 oz. orange juice = 120 calories, 8 oz. grapefruit juice = 95 calories

## Dietary Guideline 1:

# EAT A VARIETY OF FOODS

## H. Bread and Cereal

**OBJECTIVES**
When students complete this lesson, they should be able to: Identify major food sources and nutrient contributions of breads and cereals. Explain the milling process of flour, and its effect on nutrient contributions of grain products. Explain principles of purchase and storage of bread and cereals. Point out food sources in the Bread and Cereal Group which provide dietary fiber. Prepare pasta products as a source of carbohydrates, vitamins, and proteins in the diet.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Bread and Cereal |
| Teaching Aid 2: | Whole Grains |
| Teaching Aid 3: | Points to Ponder About Buying and Storing Grain Products |
| Teaching Aid 4: | Oodles of Noodles |
| Teaching Aid 5: | Points to Ponder About Pasta |
| Teaching Aid 6: | What Do You Know About Bread and Cereal |
| Student Acitvity 1: | Bread and Cereal Group |
| Student Activity 2: | Bread and Cereal Group: What's In It For Me? |
| Student Activity 3: | Pasta is Fattening and Other Stories Your Parents Told You |
| Media Resource 1: | Eat Well, Be Well: Pasta Primavera<br>New French Toast<br>Oatmeal Scones |

**KEY WORDS**

| | | |
|---|---|---|
| bran | fortified | whole-grain |
| endosperm | germ | simple carbohydrates |
| enriched | pasta | complete carbohydrates |
| fiber | starch | |

**INTRODUCTION**
Try to identify the contents of a box using the following information:
- Introduced into the United States by Thomas Jefferson
- Included frequently in Jefferson's White House menus
- Excellent source of energy
- Can be camouflaged a variety of ways
- Comes in over 60 different varieties.

Did you guess that the box contained macaroni or pasta products?

## SUGGESTED ACTIVITIES

- Refer to Student Activity 1: Bread and Cereal Group. Identify foods found in the Bread and Cereal group, servings recommended daily, and nutrient contributions. NOTE TO TEACHER: Use Teaching Aid 1: Points to Ponder About Bread and Cereal and the Answer Key for Student Activity 1: Bread and Cereal Group to stimulate class discussion.
- View a display of cereal and grain products. Discuss the meaning of the terms, "fortified" and "enriched." [NOTE TO TEACHER: Use Teaching Aid 1: Points to Ponder About Bread and Cereal.] Refer to labels on various cereal and grain products and distinguish between enriched or fortified products and non-fortified and non-enriched products. [NOTE TO TEACHER: Stress to students that no food supplies 100 percent of all nutrients even though labeled fortified or enriched. Eating a variety of foods is the best guarantee of a nutritious diet.]
- Using the Daily Food Guide and Student Activity 3: Watch Your Mouth (from Dietary Guideline 1: Eat a Variety of Foods, A. Daily Food Guide), determine the calories in your diet which were derived from carbohydrates. Distinguish between those obtained from starch and those from sugar. Using the same activity, calculate the grams of thiamine, riboflavin, niacin, and iron. Compare your total intake with the RDA. Analyze your diet to suggest improvements in food intake of B-vitamins and iron from breads and cereals.
- Listen as your teacher describes the milling process of flour specifically focusing on nutrient content of grain products using different types of grain flours: whole-wheat, enriched, unenriched. [NOTE TO TEACHER: Stress that each part of the wheat kernel is used for different products: bran–bran muffins, bran cereals; endosperm–white flour; germ–wheat germ.] Compare labels of grain products using different types of grain flour: whole-wheat flour; white flour; cake flour; all-purpose flour; self-rising flour.
- Discuss techniques for buying and storing grain products. [NOTE TO TEACHER: Refer to Teaching Aid 3: Points to Ponder About Buying and Storing Grain Products.] Review buying and storage tips for, and nutrient contributions of breads and cereals using Student Activity 2: Bread and Cereal Group: What's In It For Me?
- Discuss food sources in the Bread and Cereal group which provide the body with fiber. [NOTE TO TEACHER: Stress that fiber is found only in plants–in fruits and vegetables, whole grains, and nuts. Fiber aids in digestion and elimination. Food sources from the Bread and Cereal group provide fiber include: oatmeal, bran, and whole grains.]
- View a display of pasta products and the transparency, Teaching Aid 4: Oodles of Noodles, to identify the variety of pasta products available. [NOTE TO TEACHER: Point out that pasta is a member of the Bread and Cereal group. Refer to Teaching Aid 5: Points to Ponder About Pasta for background material.]
- Identify the statements given in Student Activity 3: Pasta is Fattening and Other Stories Your Parents Told You as either facts or myths about carbohydrates. Knowing the facts about food can aid you in selecting foods which provide the nutritive value you need for a balanced diet.
- Conduct a lab experiment using different forms of pasta. Discuss ways to decrease the amount of fat, sugar, and salt in pasta products. The following recipe is an example of a possible lab experience.

**Rigatoni with Zucchini and Eggs**

| | |
|---|---|
| 1 pound rigatoni-style pasta | Bread/Cereal Group |
| 2 pounds small, firm zucchini | Vegetable/Fruit Group |
| 6 tablespoons olive oil | |
| salt and pepper | |
| 2/3 pound mozzarella cheese, approximately | Milk and Milk Products Group |
| 2 eggs | Meat/Legumes Group (the 2 eggs are divided among 6 servings.) |
| 3-4 tablespoons grated Parmesan cheese | Milk and Milk Products Group |

Wash zucchini well, then dry. Slice into round sections, each about ½ inch thick. Heat oil in skillet and saute zucchini in it until it begins to get soft and tender. Remove from heat and sprinkle with salt and pepper. Set aside and keep warm. Slice the mozzarella cheese thinly and cut into strips. Beat eggs. Cook rigatoni in twice as much rapidly boiling, well-salted water until tender. Transfer into a very hot serving dish. Add the mozzarella, stir, then add the zucchini, the hot oil from the pan, and the beaten eggs. Stir well until eggs are lightly set. Sprinkle with Parmesan cheese and black pepper. Serve immediately.

Yield: Four to six servings.

## Teaching Aid 1

# POINTS TO PONDER ABOUT BREAD AND CEREAL

• The bread and Cereal Group includes whole-grain and enriched or fortified product. The Bread and Cereal Group includes breakfast cereals, (cooked and ready-to-eat), pasta products (macaroni, noodles, spaghetti), and flour.

• Be sure to include some less refined or whole-grain products in the diet. Refined products may be low in vitamins and trace minerals, which are partially removed from the whole grain in the milling process and are not replaced through enrichment.

• Enriched and fortified cereal and grain products have nutrients added during processing. In the processing of cereal products, the removal of the bran and germ causes a large portion of the vitamins and minerals naturally found in the product to be lost. Some products may lose up to 25 nutrients, such as thiamine, niacin, riboflavin, and iron. Replacement of these nutrients is called enrichment. Food processors may also add nutrients that did not exist in the original food. This is called fortification. For example, breakfast cereals may be fortified with additional vitamins and minerals to ensure a completely balanced nutritional meal.

• Nutrition labels contain important information on enriched or fortified products and include the product's nutrient contributions.

• Many people associate this food group with weight gain. Breads and cereals are high in calories if the choices are limited to doughnuts, pastries, cream puffs, or two servings of lasagna loaded with extra cheese. However, an average serving (1 slice) of bread provides only 70 calories, compared to a glazed doughnut which provides 150 calories. The choice makes the difference in the number of calories the body receives from breads and cereals.

## Teaching Aid 2

# WHOLE GRAINS

**THREE PARTS OF A SINGLE GRAIN:**

**Bran**: Outer part including the husk; a source of vitamins, minerals, and fiber

**Endosperm**: Main part of the grain; a source of carbohydrates

**Germ**: Small bud of the new plant found deep inside the grain; a source of vitamins, minerals, and fat

**Different Nutrients Are Found in Different Parts of a Wheat Kernel**

ENDOSPERM 83%
(SOURCE OF WHITE FLOUR)

BRAN 14.5%
(SOURCE OF ROUGHAGE
IN WHOLE WHEAT)

GERM 2.5%
(NUTRIENT - RICH; REMOVED
TO IMPROVE STORAGE AND
BAKING QUALITIES OF FLOUR)

**COMPARISON OF NUTRIENTS IN WHEAT FLOUR**

| .45 KG (1lb.) | Protein g | Fat mg | Calcium mg | Iron mg | Thiamine mg | Riboflavin mg | Niacin mg |
|---|---|---|---|---|---|---|---|
| Unenriched | 47.6 | 4.6 | 73 | 3.6 | .28 | .21 | 4.1 |
| Enriched* | 47.6 | 4.6 | 73 | 13-16.5 | 2-2.5 | 1.2-1.5 | 16-20 |
| Whole-wheat | 60.3 | 9.1 | 186 | 15.0 | 2.49 | .54 | 19.7 |

*All-purpose flour

## Teaching Aid 3

# POINTS TO PONDER ABOUT BUYING AND STORING GRAIN PRODUCTS

### BUYING TIPS

• Whole grains supply the body with nutrients and fiber. Whole grains are available in many different forms:
Whole-wheat flour and cereals
Raw oatmeal or whole-wheat ready-to-eat cereal
Cracked wheat, such as bulgur
Precooked, such as instant whole-wheat cereal
Unpolished and rolled oats.

• Next to whole grains in nutritional value are the enriched and fortified grain products. However, products with added vitamins and minerals may cost more and may not include all of the nutrients found in whole grain.

• No one food contains all needed nutrients. The lack of certain nutrients in grain products may be reduced by eating a balanced diet which includes a variety of foods. For example, a whole-grain cereal is balanced by including citrus fruits, which are an excellent source of vitamin C, and milk.

• Read carefully the labels on all breads and cereals to determine nutritive value, type of flour used, type of grain, form (pre-cooked, ready-to-eat), and chemical additives.

• Ready-to-eat products usually cost more per serving than home-baked grain products. The cost per serving of ready-to-eat cereals is higher than any other type of cereal. Sweet breads and breakfast cakes cost more per serving than plain breads and rolls. They also contain more fat, sugar, and calories. Sugar may be added to cereals for less money than the added cost of sugar-coated cereals. If unsweetened cereals are used, the amount of sugar added can be controlled to meet individual needs.

### STORAGE TIPS

• Flour should be stored in a cool, dry place in a covered container to prevent infestation by insects. Store whole-grain flour in the refrigerator to retain freshness for a longer period of time.

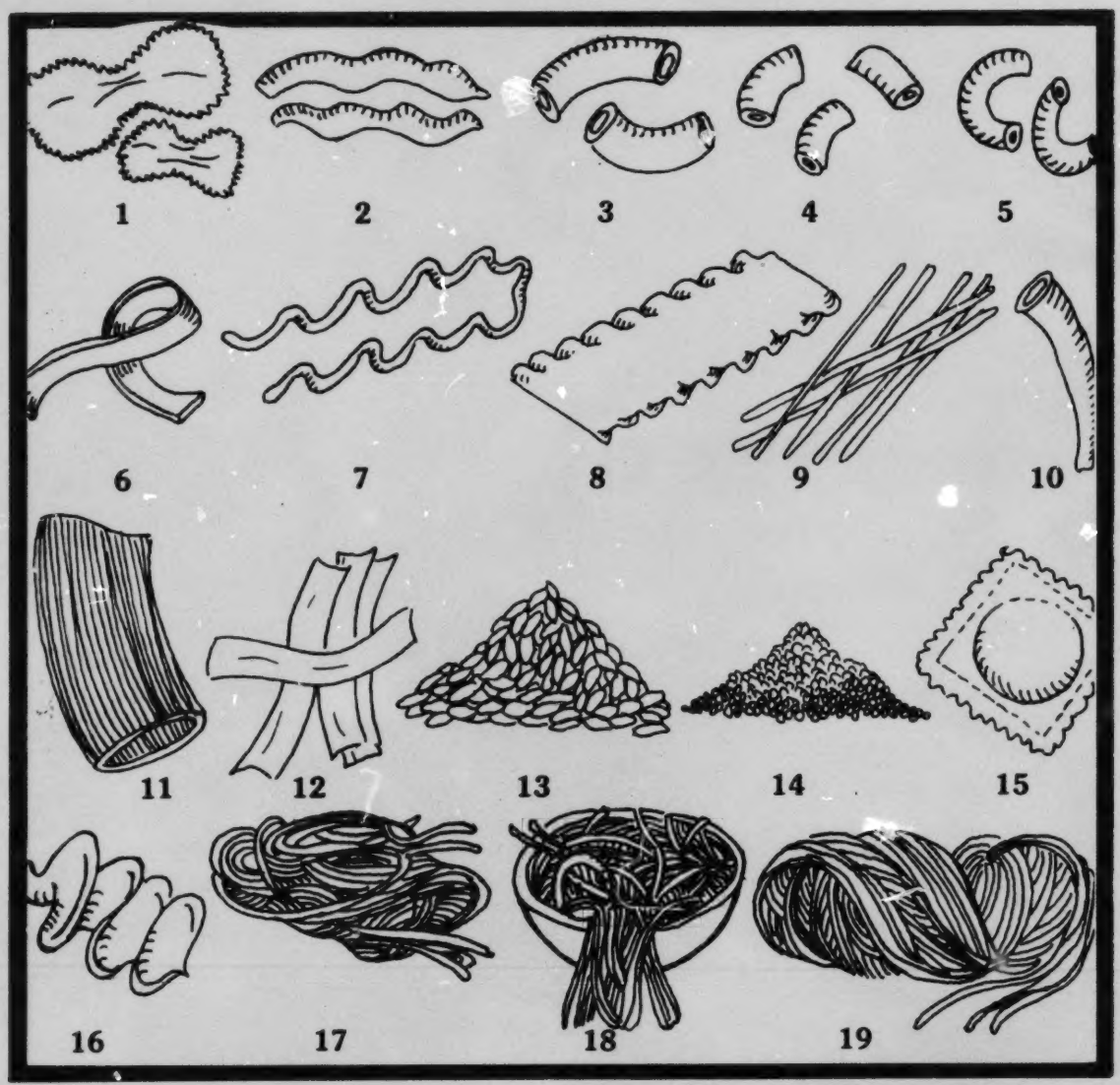
• Store breads that will be used immediately in a clean bread drawer or shelf. In the summer during hot, humid weather store bread in the refrigerator to slow down the growth of mold. Freeze extra bread for later use. Homemade bread should be stored in the refrigerator or freezer since no preservatives are added to retard mold formation.

• Store uncooked and partially cooked dry cereals and pasta in airtight containers in a cool, dry place. Cereal loses crispness and becomes tough when exposed to moisture.

## Teaching Aid 4

# OODLES OF NOODLES

Pasta is the label given to a whole family of wheat paste products. How many can you identify?




1 Bows (Farfalle)
2 Cavatelli
3 Ditali
4 Ditalini
5 Elbows
6 Fettuccine
7 Fusilli
8 Lasagna
9 Linguini
10 Ziti
11 Rigatoni
12 Noodles
13 Orzo
14 Pastina
12 Ravioli
16 Rote
17 Spaghetti
18 Spaghettini
19 Vermicelli

## Teaching Aid 5

# POINTS TO PONDER ABOUT PASTA

• Pasta products include a whole family of macaroni products. There are over 60 varieties in three main categories:
Spaghetti and macaroni - solid rod or tubular form
Lasagna or fettucini - flat sheets or strips
Pastina - small, grainlike soup pasta
The highest quality pasta are made from a mixture of semolina (durum wheat flour) and water. In addition, egg noodles contain approximately 5.5 percent egg solids (fresh, powdered, or frozen form).

• Approximately 80 percent of pasta products are enriched, providing thiamine, niacin, riboflavin, and iron. Check the label to be sure. In addition, pasta also provides protein which is usually supplemented by the protein in meat, poultry, fish, cheese, eggs, and milk to provide a complete protein.

• Pasta is a very versatile food. Many main dish combinations can be achieved. Pasta products allow leftovers to be used with a brand new look. All uncooked pasta products keep well at room temperature in airtight containers.

The steps for cooking pasta to retain maximum nutrients and produce a quality product are:

1. Use a pan with a tight-fitting lid that will hold about three times the volume of food to be cooked. Measure about twice as much water as pasta product to be cooked. Bring the water to a boil and add salt.

2. Add the pasta. Stir slowly so that each piece is kept separated. This prevents sticking or lumping. After 2 or 3 minutes, lower the heat, cover the pot, and just maintain boiling. Do not stir pasta or rice while cooking. Stirring may break the shape. If pasta sticks together, lift the pan and use a circular motion to shake the pasta apart.

3. Cook pasta products until they are just tender. Do not overcook. Serve while hot.

(Note: Use the same procedure to cook cereals. Milk may be used instead of water when cooking cereal to improve its flavor and nutritive value. Nonfat dry milk can be used to increase nutrients without adding fat).

## Teaching Aid 6

# WHAT DO YOU KNOW ABOUT BREAD AND CEREAL?

### TRUE AND FALSE

**Directions:** For Items 1-5, circle the T if the statement is True. Circle the F if the statement is False.

T F 1. Only foods from plant source provide fiber in the diet.

T F 2. A slice of enriched or fortified bread will provide the same nutrients as a slice of whole-grain bread.

T F 3. The germ of a kernel of grain is removed to improve the storage and baking quality of flour.

T F 4. Most breads and pastas are enriched with thiamine, niacin, riboflavin, and iron.

T F 5. Weight-loss diets should eliminate breads and cereals because they are high in calories.

### MULTIPLE CHOICE

**Directions:** For Items 6-15, write the letter of the best response in the blank to the left of the item.

_____ 6. The nutrient *not* provided by bread and cereal is
A. carbohydrate.
B. iron.
C. protein.
D. vitamin C.

_____ 7. The residue from the digestion of whole-grain breads and cereals which aids in elimination of waste from the body is
A. carbohydrates.
B. cellulose.
C. wheat germ.
D. starch.

_____ 8. Food processors often fortify or enrich bread and cereal by adding
A. only part of the nutrients lost in processing.
B. all nutrients that are lost in processing.
C. nutrients other than those lost in processing.
D. nutrients lost in processing, plus additional nutrients.

_____ 9. Which cereal is the most economical as well as the most nutritious?
A. Ready-to-eat cereal
B. Instant oatmeal
C. Long-cooking oatmeal
D. Sugar-coated cereal

_____ 10. Because it contains no preservatives, homemade bread should be stored in
A. a bread drawer.
B. a plastic container.
C. the refrigerator.
D. the freezer.

_____ 11. The correct way to prepare spaghetti or macaroni does *not* include
A. draining pasta in sieve or colander.
B. following directions for cooking time.
C. stirring slowly to separate strands.
D. using twice as much water as pasta.

_____ 12. How many basic types of pasta are there?
A. Two
B. Three
C. Four
D. Six

_____ 13. Bread and cereal provide significant amounts of the following nutrients which are important to optimum health
A. calcium, protein, vitamin C.
B. carbohydrates, B-vitamins, iron.
C. carbohydrates, iron, vitamin C.
D. protein, riboflavin, vitamin A.

_____ 14. Darlene is on a diet to lose weight. Which pasta dish should she select?
A. Cheese ravioli
B. Lasagna
C. Macaroni and cheese
D. Spaghetti with tomato sauce

_____ 15. Most commercial pasta is made of
A. all-purpose flour.
B. durum wheat flour.
C. self-rising flour.
D. whole-wheat flour.

**MATCHING**

**Directions**: For Items 16-20, match the description with the parts of a grain of wheat by writing the correct letter in the blank. Some of the parts of grain will be used more than once.

| DESCRIPTIONS | PARTS OF GRAIN |
|---|---|
| _____ 16. Main part of grain | A. Bran |
| _____ 17. Outer part of wheat grain | B. Endosperm |
| _____ 18. Small bud of new plant found deep inside of grain | C. Germ |
| _____ 19. Source of carbohydrates | |
| _____ 20. Source of vitamins, minerals and fiber | |

## Answer Key Teaching Aid 6

# WHAT DO YOU KNOW ABOUT BREAD AND CEREAL?

1. T
2. F
3. T
4. T
5. F
6. D
7. B
8. D
9. C
10. C
11. A
12. B
13. B
14. D
15. B
16. B
17. A
18. C
19. B
20. A

## Answer Key Student Activity 1

# BREAD AND CERIAL GROUP

**HOW MUCH FOR YOU?**

Four basic servings daily. Include only whole-grain and enriched or fortified products. These products must be made with whole grains or enriched flours or meal: bread, muffins, waffles, cereals, cornmeal, flour, grits, rice, rolled oats, noodles, spaghetti, and macaroni.

**WHAT'S A SERVING?**

A serving from this group includes all whole-grain and enriched or fortified products. Typical portions include:

1 slice bread
½ cup to ¾ cup cooked cereal
½ cup to ¾ cup macaroni, noodles, rice, or spaghetti
1 ounce ready-to-eat cereal

**WHAT'S IN IT FOR YOU?**

| Nutrient | Function |
|---|---|
| Complex Carbohydrates | |
| Starch | Provides starches (bread, rice, cereal, pasta) for energy |
| Cellulose | Provides fiber (whole-grain cereal, bran) to aid in digestion and elimination |
| B-vitamins | |
| Thiamine ($B_1$) | Helps cells produce energy<br>Promotes healthy nervous system<br>Promotes healthy appetite |
| Riboflavin ($B_2$) | Helps cells produce energy<br>Promotes healthy tissues around eyes and mouth<br>Helps fight infection |
| Niacin | Helps cells produce energy<br>Promotes healthy nervous system |
| Minerals | |
| Iron | Prevents anemia<br>Helps cells use oxygen<br>Helps form red blood cells |

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## Answer Key Student Activity 2

# BREAD AND CEREAL GROUP: WHAT'S IN IT FOR ME?

1. Bran
2. Carbohydrate
3. Germ
4. Fortified
5. Thiamine
6. Whole grain
7. Nutrition label
8. Endosperm
9. Refrigerator
10. Balanced meal

## Answer Key Student Activity 3

# PASTA IS FATTENING AND OTHER STORIES YOUR PARENTS TOLD YOU

1. Myth- The way pasta is eaten influences the caloric value. For example: One ounce of pasta has approximately 100 calories. A simple tomato sauce and grated cheese would add 125 calories. Additional calories are provided as more ingredients are added.

2. Myth- Carbohydrates are low in calories, rich in vitamins and minerals, and contain a good amount of protein and fiber. Macaroni and rice are as rich nutritionally as steak.

3. Myth- Complex carbohydrates, such as grains, vegetables, and fruits, provide vitamins and minerals, fiber, and energy.

4. Fact- Cellulose, the residue from the digestion of whole grains, fruits, and vegetables, provides the dietary fiber necessary for elimination of waste products.

5. Myth- A variety of foods in a well-balanced diet is the best approach to attaining optimum health.

6. Fact- All of the nutrients found in the bran are not replaced in enriched flour when B-vitamins and iron are added.

7. Myth- Carbohydrates provide essential nutrients as well as energy, especially when reducing caloric intake.

## Dietary Guideline 2:

# MAINTAIN IDEAL WEIGHT

## A. Nutrition and Health

**OBJECTIVES**

When students complete this lesson, they should be able to: Describe signs of good health and poor health. Relate exercise, sleep, and balanced diet to good health. Determine the function of vitamin supplements in the daily diet.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Which Diet Will You Choose? |
| Teaching Aid 2: | Signs of Health |
| Teaching Aid 3: | Contributors to Good Health |
| Teaching Aid 4: | Points to Ponder About Good Health |
| Teaching Aid 5: | Points to Ponder about Vitamin Supplements |
| Teaching Aid 6: | Points to Ponder about Malnutrition Deficiency Diseases |
| Teaching Aid 7: | What Do You Know About Nutrition and Health? |
| Student Activity 1: | Decisions for My Future Health |
| Student Activity 2: | Vitamins - How Much Is Too Much? |
| Student Activity 3: | The Road to Health: Which Will You Choose? |
| Media Resource 1: | Eat Well, Be Well: Refrigerator Rice Salad |

**KEY WORDS**

| | | |
|---|---|---|
| aerobic | malnutrition | megadose |
| health | undernutrition | provitamin |
| insomnia | | |

**INTRODUCTION**

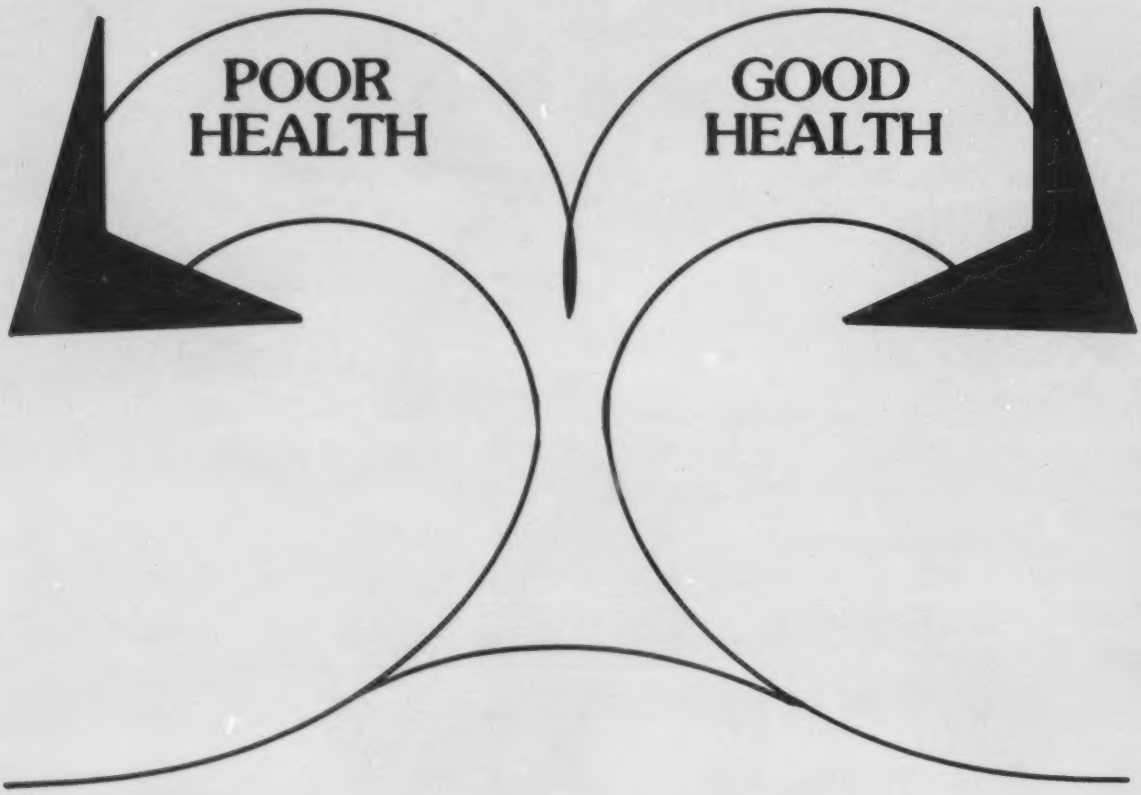
Refer to the bulletin board, Teaching Aid 1: Which Diet Will You Choose? Discuss the potential influence of your present dietary patterns on your future health. Identify possible dietary "paths" you may take, and generate examples of foods falling in each "path." The decisions you make about food choices may determine your future health. For good health your body needs a balanced diet, as well as adequate exercise and sleep. Your future health depends upon which path you decide to follow. Poor health or good health: The choice is yours.

**SUGGESTED ACTIVITIES**

- Use Student Activity 1: Decisions for My Future Health to analyze ways you need to improve your diet. Discuss the influence daily decisions have upon future health.
- Discuss signs of good health and poor health. Brainstorm to identify descriptive phrases depicting signs of good and poor health. Study Teaching Aid 2: Signs of Health to summarize the factors relating to optimum health, and compare with factors which influence poor health. [NOTE TO TEACHER: Stress to the students that by caring for their bodies, they are giving themselves an opportunity for good health.]
- View the transparency, Teaching Aid 3: Contributors to Good Health to identify the relationship of sleep and a balanced diet to maintaining optimum health. [NOTE TO TEACHER: Use Teaching Aid 4: Points to Ponder About Good Health to summarize contributions of exercise, sleep, and balanced diet to good health.
- Listen to a physical education teacher or athletic coach explain the benefits of exercise and the steps to use when planning a personal exercise program. Demonstrate your favorite exercises and explain their health benefits to the class.
- Prepare a display of labels from vitamin and mineral supplements. Discuss the function of these supplements in the daily diet. [NOTE TO TEACHER: Use Teaching Aid 5: Points to Ponder about Vitamin Supplements to stimulate discussion.] Complete Student Activity 2: Vitamins – How Much Is Too Much? to reinforce the concept of megadosing.
- Survey your friends and family to find out 1) what vitamin supplements they are taking, 2) if they take vitamin supplements regularly, 3) why they are taking vitamin supplements, and 4) whether they know what food sources supply these nutrient.
- Discuss specific food-related deficiency diseases as they relate to malnutrition and undernutrition. [NOTE TO TEACHER: Use Teaching Aid 6: Points to Ponder About Malnutrition and Deficiency Diseases.]
- Read about an underdeveloped country to determine what foods are common. Do they supply adequate nutrition? What would a teenager's diet be like? Would she/he would get enough protein?
- Describe the road to good health using Student Activity 3: The Road to Health: Which Will You Choose? Review contributors to good and poor health, and the importance of present dietary practices to future health.

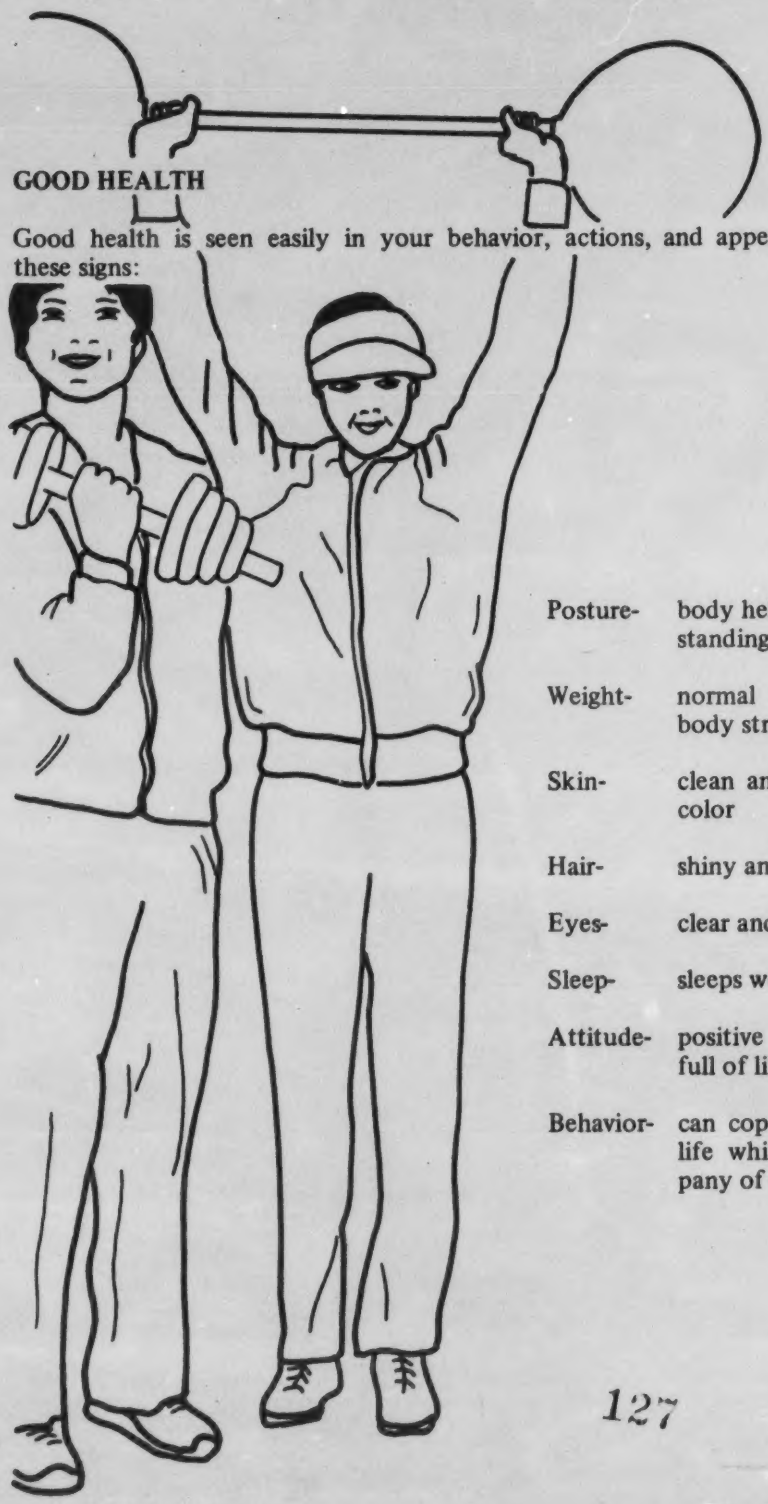
Teaching Aid 1

# WHICH DIET WILL YOU CHOOSE? THE DECISION IS YOURS



## Teaching Aid 2

# SIGNS OF HEALTH



**GOOD HEALTH**

Good health is seen easily in your behavior, actions, and appearance. Check yourself against these signs:

| | |
|---|---|
| Posture- | body held straight and tall when sitting, standing, or walking |
| Weight- | normal body weight for height and body structure |
| Skin- | clean and smooth with a fresh, natural color |
| Hair- | shiny and clean |
| Eyes- | clear and bright |
| Sleep- | sleeps well |
| Attitude- | positive outlook on life, realistic, alert, full of life |
| Behavior- | can cope with daily stress, has goals in life which are attainable, enjoys company of other people |

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**POOR HEALTH**

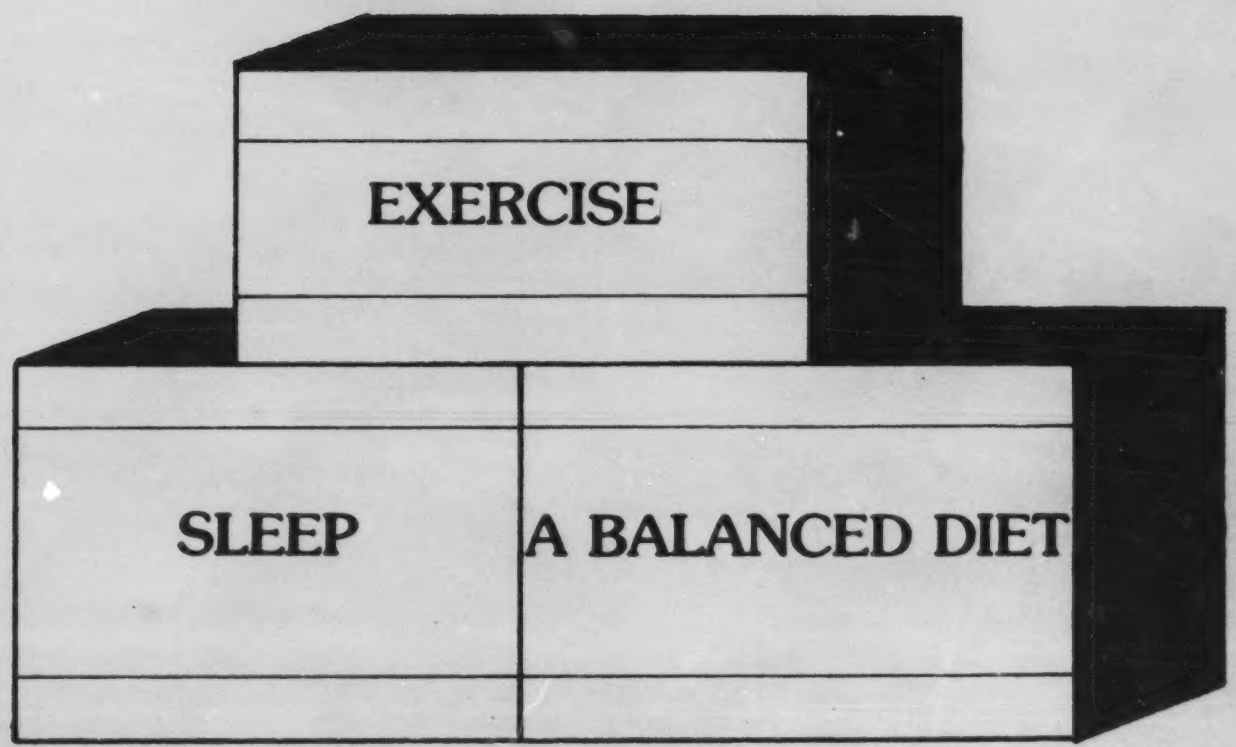
Poor health may be indicated by the following signs:

| | |
|---|---|
| Posture- | poor posture with slumping and drooping shoulders when sitting, standing, or walking |
| Weight- | underweight or overweight |
| Skin- | flaky, poor color, doesn't heal easily |
| Hair- | dully, dry, breaks easily |
| Eyes- | dull, red, itching |
| Sleep- | difficulty in sleeping |
| Attitude- | rundown feeling, moody, blue |
| Behavior- | lacks energy and incentive, becomes ill easily, no initiative to face everyday life |

Teaching Aid 3

# CONTRIBUTORS TO GOOD HEALTH

For Good Health
Your Body Needs . . .



## Teaching Aid 4

# POINTS TO PONDER ABOUT GOOD HEALTH

Contributors to good health include:

**Exercise**
Exercise helps you feel better and more energetic. It benefits your body in the following ways:
firms up your body to improve appearance.
provides muscles with more flexibility; therefore you feel limber.
aids in producing a healthier heart; as a result, helps reduce the risk of heart disease.
makes you feel calmer and more relaxed.
uses up energy (calories); coupled with diet aids in weight control.

Remember, when beginning an exercise program start out gradually. Include these three basic parts:
warm-up - gets the body ready to exercise and makes muscles more flexible (5-10 minutes)
exercise - full speed ahead
cool-down - allows the body to return to normal following vigorous exercise.

Exercise on a regular basis to receive optimum benefits. Types of exercise include: flexibility exercise (to stretch muscles); strengthening exercises (to firm and strengthen muscles); and aerobics. As body uses more oxygen than normal (heart and lungs work harder).

**Sleep**
Sleep is essential to health. While sleeping, the body builds up a new supply of energy to meet the next day's needs. Your body also repairs and replaces cells more quickly during sleep. The amount of sleep needed is usually several hours, but some people need more and some less.
Insomnia, or the inability to sleep, may be alleviated by the following:
Do a few stretching exercises to relax muscles.
Have a bedtime snack saved from dinner.
Read a book or watch a dull television program.
Avoid eating a heavy meal before bed.
Think of pleasant experiences.

**Balanced Diet**
A balanced diet provides the body with a variety of nutrients essential to maintain health.

## Teaching Aid 5

# POINTS TO PONDER ABOUT VITAMIN SUPPLEMENTS

- A megadose represents more than 10 times the recommended RDA, except for the fat-soluble vitamins A and D which is more than five times the RDA.

- Vitamins taken in excess of the recommended amount are either excreted from the body, stored in body fat and other organs, or used by the body to perform as drugs (nonvitamin functions).

- Megadosing fat-soluble vitamins is especially risky since these vitamins are stored in the body. Side effects of the excess fat-soluble vitamins A and D include:
  Vitamin A: headaches, nausea, diarrhea
  Vitamin D: kidney damage, kidney stones, abnormal heart rhythms.

- Vitamin C is a water-soluble vitamin and is excreted by the body. Too much vitamin C may partially destroy the vitamin $B_{12}$ in foods and may also cause the formation of kidney stones. Because of these side effects, vitamin C is not recommended as a cure for the common cold. A regular antihistamine from a drugstore would be a better choice.

- Most teens consume adequate amounts of most vitamins and minerals, with exception of iron, if they eat a well-balanced diet.

## Teaching Aid 6

# POINTS TO PONDER ABOUT MALNUTRITION AND DEFICIENCY DISEASES

• Malnutrition results when the diet lacks the necessary quality of nutrients in relation to body needs.

• Undernutrition results when the diet lacks a sufficient quantity of food. It results when there is not enough food to produce adequate tissue development and body repair.

• A deficiency disease is caused by the inadequate supply of a necessary nutrient. When the body does not consume a nutrient in sufficient quantity it uses any reserve of that nutrient which the body has stored. If the deficiency continues for a long enough period, a deficiency disease occurs.

• In the United States, doctors often see patients whose diets have been poor in several nutrients, but seldom see specific deficiency dieseases. In underdeveloped countries, where food supplies are limited in quantity and variety, deficiency diseases are more likely to occur.

• Deficiences of specific nutrients may result from:
1) long established faulty eating habits
2) food idiosyncracies ( I don't like liver!)
3) arbitrarily selected diets for relief of symptoms of digestive problems
4) following a restricted diet for extended period
5) alcoholism.

• Deficiency diseases that are most familiar include:
1) Anemia - iron
2) Beriberi - thiamine
3) Goiter - iodine
4) Kwashiokor - protein
5) Marasmus - carbohydrates
6) Nightblindness - vitamin A
7) Pellagra - vitamin B (niacin)
8) Rickets - vitamin D
9) Scurvy - vitamin C
10) Osteoporosis - calcium/phosphorus

• Less obvious signs of nutrient deficiences include:

Protein - poor muscle tone, poor posture, poor resistance to disease
Carbohydrates - weight loss, fatigue, lack of energy
Vitamin A - increased susceptibility to infection, weakened respiratory system, skin changes, dry eyelids, reddened eyes
Thiamine - nervousness and irritability, poor appetite and digestion, unusual fatigue
Riboflavin - reddening of eyes, light sensitivity, blurring of vision, scaly skin around mouth and nose, cracked skin at corners of mouth
Niacin - nervousness, depression, inflamed skin, digestive disorders
Vitamin C - sore, bleeding gums; bruises, tenderness in joints and limbs; loss of appetite, possible internal hemorrages
Vitamin D - Phosphorus and Calcium - poorly formed bones and teeth, slow blood clotting
Iron - tired, run-down feeling, gastric upset, paleness, dizziness

## Teaching Aid 7

# WHAT DO YOU KNOW ABOUT NUTRITION AND HEALTH?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle T if the statement is True. Circle the F if the statement is False.

T F 1. If a person eats an appetizing diet, exercises regularly and sleeps at least eight hours every night, he or she is sure to have optimun health.

T F 2. Malnutrition results, only when a person does not have enough food to eat.

T F 3. The ability to deal with stress in life can be related to the food one eats.

T F 4. A good exercise program includes a warm-up and cool-down period.

T F 5. A diet that contributes to good health includes a variety of foods selected from the Daily Food Guide.

**MULTIPLE CHOICE**

**Directions:** For Items 6-10, write the letter of the best answer in the blank.

_____ 6. The primary function of aerobic exercise is to
A. burn excess calories.
B. make the heart and lungs work harder.
C. strengthen muscles.
D. stretch muscles.

_____ 7. Which of the following is least likely to contribute to optimum health?
A. Eating a balanced diet
B. Exercising regularly
C. Getting sufficient sleep
D. Supplementing diet with nutrients

_____ 8. During sleep the body does not
A. build up an energy supply.
B. build new cells.
C. burn excess calories.
D. repair damaged cells.

_____ 9. A healthy solution to insomia is to
A. eat dinner two hours before going to bed.
B. exercise vigorously before going to bed.
C. read a dull book or watch a boring TV program before going to bed.
D. take a sleeping pill.

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_____ 10. The most likely contributor to poor health is eating
A. high-calorie snacks.
B. fast-food items.
C. the same foods at every meal.
D. meals at irregular times.

**MATCHING**

**Directions:** For Items 11-15, match the signs of poor health with the nutrient most often related to that condition by writing the correct letter in the blank. One nutrient will not be used.

| SIGNS OF POOR HEALTH | NUTRIENTS |
|---|---|
| _____ 11. Bones that break easily | A. Calcium |
| _____ 12. Lack of energy | B. Carbohydrates |
| _____ 13. Flaky, discolored skin | C. Fat |
| _____ 14. Overweight | D. Protein |
| _____ 15. Sores that do not heal | E. Vitamin A |
| | F. Vitamin C |

## Answer Key Teaching Aid 7

# WHAT DO YOU KNOW ABOUT NUTRITION AND HEALTH?

1. F
2. F
3. T
4. T
5. T
6. B
7. D
8. C
9. C
10. C
11. A
12. B
13. E
14. C
15. F

## Answer Key Student Activity 3

# THE ROAD TO HEALTH: WHICH WILL YOU CHOOSE?

1. True
2. False, the body must have a balance of all nutrients in order to maintain the body in a state of general good health.
3. False, signs of good health are seen in overall appearance and in behavior; not just in the absence of sickness.
4. False, a more natural solution should be sought. Taking a sleeping pill can become habitual and can lead to other problems.
5. True
6. False, widespread and extreme malnutrition is most often seen in underdeveloped countries, but there are also cases of malnutrition in the U.S.
7. True
8. True
9. False, processes do slowdown in some cases, but if all body processes stop, the person has died.

## Dietary Guideline 2:

# MAINTAIN IDEAL WEIGHT

## B. Development of Eating Habits

**OBJECTIVES**

When students complete this lesson, they should be able to: Describe the physical, social, and emotional reasons for food choices. Explain different food patterns and behavior. Explain how food marketing techniques influence food choices. Analyze the factors that affect the development of personal food choices. Analyze the relationships of personal lifestyle and food patterns.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Eating Habits |
| Teaching Aid 2: | Why We Eat |
| Teaching Aid 3: | Points to Ponder About Shopping for Food |
| Teaching Aid 4: | What Do You Know About Development of Eating Habits? |
| Student Activity 1: | Why Did I Eat That? |
| Student Activity 2: | You Are What You Eat |
| Student Activity 3: | Check Out Your Market |
| Student Activity 4: | Prime Time Advertising |
| Media Resource 1: | Eat Well, Be Well: Strawberry Yogurt Pops |
| Media Resource 2: | Winning the Grocery Game: Language and the Supermarket |

**KEY WORDS**

| | | |
|---|---|---|
| appetite | lifestyle | values |
| culture | peer group | comparison shopping |
| eating habits | self-concept | brand name |
| ethnic background | social situations | house brand |

**INTRODUCTION**

Collect and share with the class, cartoons, or quotations which illustrate emotional reasons for food choices. How does one's self-concept affect food choices? How are emotions related to eating habits?

**SUGGESTED ACTIVITIES**

- Identify factors which may influence your eating habits. Using Student Activity: Why Did I Eat That?, discuss factors influencing the development of dietary patterns. Define each of the terms listed on the sheet, and write the definition on the chalkboard. On the activity sheet, write examples of each term which influenced your food choices. Draw arrows showing the interrelationships between the terms and personal food choices. For example, draw an arrow from values to food choices if those values influence your food choices; draw an arrow from food choices to values if your food choices affect your values. [NOTE TO TEACHER: Use Teaching Aid 1: Points to Ponder About Eating Habits to stimulate discussion.]
- Collect pictures visually depicting factors influencing food habits. For example, how food is used socially, and how food is prepared and served. Discuss what the pictures illustrate about food habits. Use the pictures to create a bulletin board, collage, or mobile; and label the factors illustrated. Display your artwork in the classroom.

- Work in buzz groups to discuss ways you and your families use food to celebrate holidays, special occasions, specific accomplishments. List factors which influence these uses of food. Share results of the buzz groups with the class. Discuss the following questions in the buzz groups:
  What foods do you eat on special occasions? Why?
  How did these traditions begin?
  How do you feel when you eat these foods?
  Which of the traditions would you want to continue in your future family? Why?
  Which of the traditions would you not want to continue? Why?

[NOTE TO TEACHER: Review common traditions associated with food.]

- Investigate the role food plays in historical or current events. Role play or act out in skits the importance of foods in such events as the Boston Tea Party, spice trade in 1500's, space exploration, food famines.
- Analyze lifestyles and identify typical menus for each using Student Activity 2: You Are What You Eat. Point out how food patterns provide others with information about the person.
- List reasons you eat besides a need for nourishment. View Teaching Aid 2: Why We Eat to stimulate discussion. [NOTE TO TEACHER: Possible reasons include loneliness, boredom, frustration, security, adventure, sense of belonging, status, reward, and pleasure. Stimulate discussion using background information from Teaching Aid 1: Points to Ponder About Eating Habits.]
- Research foods from other cultures, countries, or regions. Using the information obtained, plan a typcial day's menu that reflects the culture, country, or region. Analyze the menus for nutrient contributions from each of the foods. Share the menus with the school food service personnel in your school. Coordinate a special day in the cafeteria focusing on foods from another culture, country, or region. Decorate the cafeteria, play cultural music, and plan with the school food service personnel to serve a traditional menu from that culture, country, or region.
- Role play situations you face when peer pressure influences the food choices you make. Discuss the reasons why food choices are affected by peer pressure. List suggestions for reducing the influence peer pressure makes on food choices. Possible role play situations include:
  Pizza with the gang is a traditional event after every home basketball game.
  Candy and chips from the vending machine are a favorite choice of your friends.
  The "in" thing among your friends is to skip breakfast to cut calories, then to grab a candy bar at midmorning break.
  When you're feeling blue, all your friends say eating a candy bar will lift your spirits.

  Show through role play how the social situations listed above influence the food choices you make. What other ways do your friends influence your food choices? What makes you choose a popular food that you would not ordinarily eat? How can you reduce the effect of peer pressure on your food choices?
- Invite a supermarket manager to discuss the operation of the supermarket. Advertising may greatly influence food purchases in the supermarket. Include in the discussion the following questions: How are displays set up? How are coupons used? How often is stock rotated? What factors influence supermarket "specials" on foods? What sales promotions are used to advertise products? How does store layout influence purchases? Why are items placed at the check out line for purchase? Summarize how the factors discussed influence food choices.
- Discuss factors to consider when shopping for food. Use the information on Teaching Aid 3: Points to Ponder About Shopping for Food to stimulate class discussion.
- View filmstrips on grocery shopping to examine the persuasion tactics used in grocery stores: shelving tricks, special sales, tie-ins, packaging, pricing techniques and the psychology of food display. Discuss how to use labels to determine which brands are superior, which foods to avoid and which are simply clever ways of selling inexpensive ingredients at high prices. [NOTE TO TEACHER: Use The Grocery Game Filmstrips in Winning the Grocery Game: Language and the Supermarket from the Learning Seed Company.]
- Interview five consumers who shop at supermarkets. Ask them to comment on how advertising and sales promotions affect their food purchases. Use the interview from Student Activity 4: Supermarket Strategies to record the comments received from the interviews.

- Participate in a scavenger hunt to find products and marketing techniques identified on scavenger cards. [NOTE TO TEACHER: Use Scavenger Hunt in Winning the Grocery Game: Language and the Supermarket from the Learning Seed Company.]
- Complete Student Activity 3: Check Out Your Market to determine how local food markets provide for customers needs.
- View two hours of television on a Saturday morning. Analyze the food advertisements to determine their influences on food choices. Record your findings using the form provided in Student Activity 4: Prime Time Advertising. Using the food items you recorded, discuss the following questions:

  What food groups from the Daily Food Guide do the food items represent?
  What celebrities advertised the food items?
  How do television celebrities influence food choices? Give examples.
  Which of the food items are sources of dietary fiber?
  Which food items are low in fat in sugar?
  How often are presweetened breakfast cereals advertised?

## Teaching Aid 1

# POINTS TO PONDER ABOUT EATING HABITS

Eating habits are difficult to break. Reasons why we eat the way we do may be influenced by the following.

**Resources**
Time, money, and energy influence our food choices. Feelings about energy conservation may influence preparation and grocery shopping choices. The more food that is available at a price that can be afforded, the wider the variety of food choices one can make.

**Values**
The relative importance of things in our lives represents our values. If we value good health, our food choices will be influenced so we select foods that make us look and feel good.

**Religion**
Religious practices sometimes influence our food choices.

**Food Availability**
Location and climate often determine what foods are grown and available. Thus, our selection of foods is influenced by availability. The form of the food - fresh, canned, frozen, dehydrated, smoked - can influence the availability.

**Advertising**
Advertising makes certain foods more appealing, and provides product information which influences our food choices.

**Senses**
The flavor, aroma, appearance, feel and sound of foods cause foods to appeal or be rejected.

**Peers**
During the teenage years, peers often influence eating patterns. Fad diets, eating fast foods, and skipping meals are common practices often influenced by peers.

**Family/Tradition**
Many food patterns are passed down from generation to generation. Food patterns so deeply ingrained in family members are difficult to change.

**Individual Difference**
Personal preferences and emotions will affect food choices. You may like fried potatoes and dislike mashed potatoes. Food allergies, health problems and concern about weight are also individual differences to be considered.

Teaching Aid 2

# WHY WE EAT

Frustration

Boredom

Loneliness

Security

Adventure

Sense of Belonging

Status

Pleasure

Reward

## Teaching Aid 3

# POINTS TO PONDER ABOUT SHOPPING FOR FOOD

• Where you shop will influence your food choices. Types of food stores include:
Supermarkets
Discount food markets
Convenience stores
Specialty stores
Delicatessens
Farmer's markets/roadside stands

• Factors to look for in the store where you shop for food:
Services offered: sacking of groceries, delivery, credit
Appearance: neat, clean, well-lighted, well-stocked
Convenience: hours of business, sufficient check outs, location, variety of stock, brands and sizes you prefer
Advertising: advertised specials, special services, games
Quality of produce: fresh, clean, good variety
Atmosphere: courteous employees, helpful, knowledgeable

• Shopping tips to get the best buy:
Read labels to learn content and uses.
Comparison shop for brands and quality.
Shop for foods that are in season.
Choose the right size container for your family.
Take advantage of advertised specials after comparing prices.
Consider the different forms of food that are available.
Consider how it is to be used and select the least expensive form for the intended use.
Select convenience foods only when necessary. Foods that are prepared from "scratch" are usually less expensive, but the time saved in preparing it may be worth the extra cost.
Use a shopping list to help avoid impulse buying.

## Teaching Aid 4

# WHAT DO YOU KNOW ABOUT DEVELOPMENT OF EATING HABITS?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle T if the statement is True. Circle F if the statement is False.

T F 1. People who eat because of frustrations, boredom, and/or loneliness often tend to be overweight.

T F 2. Food habits established because of family traditions are easy to change.

T F 3. Eating habits are related closely to a person's state of health.

T F 4. A person's appetite can be influenced by her/his self-concept.

T F 5. Supermarkets advertise "specials" at low prices to get customers into the store to buy regularly priced items.

**MULTIPLE CHOICE**

**Directions:** For Items 6-10, write the letter of the best response in the blank to the left of the item.

_____ 6. What influence is most likely to cause a teenager to try a fad diet, eat fast foods, or skip meals?
A. Advertising
B. Family
C. Peers
D. Tradition

_____ 7. A recent food trend in the United States is the use of
A. convenience foods.
B. freeze-dried foods.
C. frozen foods.
D. low-calorie foods.

_____ 8. The three most common influences on children's eating habits include
A. friends, availability, values.
B. parents, culture, ethnic background.
C. parents, friends, television advertising.
D. values, tradition, availability.

_____ 9. You are trying to lose weight, and your friends ask you to join them for lunch. What kind of food will you choose?
A. Chinese
B. German
C. Italian
D. Mexican

_____ 10. Personal food patterns do *not* usually provide others with information about your
A. culture.
B. lifestyle.
C. occupation.
D. values.

**MATCHING**

**Directions:** For Items 11-15, match the food choices with the factor most likely to influence its selection by writing the correct letter in the blank. Influences may be used more than once.

| FOOD CHOICES | INFLUENCES |
|---|---|
| _____ 11. Cheeseburger, fries, and soft drink | A. Availability |
| _____ 12. Enchiladas, tamales, refried beans | B. Convenience |
| _____ 13. Fresh asparagus, strawberries, watermelon | C. Culture/Tradition |
| _____ 14. Turkey and dressing, cranberry sauce, pumpkin pie | D. Peers |
| | E. Religion |
| _____ 15. TV dinner, cake mix | |

## Answer Key Teaching Aid 4

# WHAT DO YOU KNOW ABOUT DEVELOPMENT OF EATING HABITS?

1. T
2. F
3. T
4. T
5. T
6. C
7. D
8. C
9. A
10. C
11. D
12. C
13. A
14. C
15. B

## Answer Key Student Activity 2

# YOU ARE WHAT YOU EAT

| | Lunch | Snack |
|---|---|---|
| **Jan** | cheeseburger<br>French fries<br>milkshake | candy bar<br>cola drink |
| **Bill** | lasagne<br>French bread w/butter<br>chocolate layer cake<br>whole milk | chocolate fudge<br>brownies<br>cola drink |
| **Lee** | stir-fried chicken over rice<br>broccoli<br>whole-wheat bread<br>fresh fruit cup<br>lowfat milk | peanut butter<br>w/raisins on<br>whole-wheat<br>English muffin<br>granola<br>tangerine |
| **Carlos** | enchilada<br>refried beans<br>corn tortilla<br>whole milk<br>sopapilla | nachos |
| **Bettie** | TV dinner of<br>meat loaf, green beans,<br>mashed potatoes<br>ice cream bar | potato chips<br>dip<br>commercially pre-<br>pared cookies |

## Dietary Guideline 2:

# MAINTAIN IDEAL WEIGHT

## C. Personalizing Nutrition

**OBJECTIVES**
When students complete this lesson, they should be able to: Describe a balanced diet to maintain optimum health for teenagers. Differentiate between nutritious foods and empty-calorie foods. Analyze nutrition information related to athletic performance. Examine the influence of nutrition on job success. Plan a daily menu to assure adequate nutrition during pregnancy.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Teen Nutrition |
| Teaching Aid 2: | Put on a Happy Face |
| Teaching Aid 3: | Points to Ponder About Nutrition for Athletes |
| Teaching Aid 4: | Job Success |
| Teaching Aid 5: | Points to Ponder About Nutrition and Job Success |
| Teaching Aid 6: | Points to Ponder About Nutrition During Pregnancy |
| Teaching Aid 7: | What Do You Know About Personalizing Nutrition? |
| Student Activity 1: | Fact or Myth? |
| Student Activity 2: | What Can Nutrition Do For Andrew? |
| Student Activity 3: | Eating for Two |
| Media Resource 1: | Eat Well, Be Well: |
| | Crunchy Apple Cobbler |
| | Refrigerator Rice Salad |
| | Pasta Primavera |
| | Slim Green Goddess Salad Dressing |
| | Lemon Bavarian Creme |
| | Beef Stroganoff |

**KEY WORDS**
dehydration
empty calorie
fetal alcohol syndrome

**INTRODUCTION**
Design collages, titled "Nutrition: A Lifetime of Dietary Decision Making," to display in the classroom. The collages should depict how nutritional needs of people change at various stages of the life cycle. Discuss ways to improve eating patterns at various stages of the life cycle. Discuss why the body's nutritional needs change?

**SUGGESTED ACTIVITIES**

- Discuss the importance of the development of nutritious eating habits for teenagers. [NOTE TO TEACHER: Using Teaching Aid 1: Points to Ponder About Teen Nutrition, discuss the nutrients often lacking in the diets of teenagers. Explain how empty calorie snacks can be detrimental to the health of teenagers.] Play bingo by classifying popular foods as empty-calorie or nutritious foods. [NOTE TO TEACHER: Directions for bingo are found in Teaching Aid 2: Put on a Happy Face.]
- Identify nutrition misinformation often associated with athletes. Use Teaching Aid 3: Points to Ponder About Nutrition for Athletes.] Discuss the nutrient needs of the teen athlete. [NOTE TO TEACHER: Using Student Activity 1: Fact or Myth?, analyze nutrition information related to athletic performance.
- Consider ways nutrition can affect success on the job. Discuss job performance factors related to nutrition. [NOTE TO TEACHER: Use Teaching Aid 4: Job Success and Teaching Aid 5: Points to Ponder About Nutrition and Job Success to stimulate discussion.]
- Analyze the situation described in Student Activity 2: What Can Nutrition Do For Andrew? Identify job problems related to poor eating habits and discuss ways to assure a well-balanced diet to improve work performance.
- Discuss reasons nutrition is especially important for the pregnant teen. Discuss the importance of nutrition for the pregnant teen. [NOTE TO TEACHER: Use Teaching Aid 6: Points to Ponder About Nutrition During Pregnancy.] Plan a daily menu to help avoid health risks for mother and baby using Student Activity 3: Eating for Two.

## Teaching Aid 1

# POINTS TO PONDER ABOUT TEEN NUTRITION

• Teenagers are particularly vulnerable to poor nutrition due to a variety of factors: peer pressure, junk food availability, lack of time for food preparation and eating, and concern about personal appearance and weight control.

• Studies reveal that teenagers are often lacking in the following nutrients: calcium, iron, vitamin A, and vitamin C. Iron can be stored in the body to build up reserves for future life stages when iron is especially needed, such as pregnancy and adolescent growth spurts. Eating a balanced diet including a variety of foods ensures that these nutrients are supplied to the body.

• Include foods from each of the groups in the Daily Food Guide to obtain a balanced diet:

| | |
|---|---|
| Milk and Milk Products | 4 or more servings |
| Meat and Legumes | 2 or more servings |
| Vegetable and Fruit | 4 or more servings<br>one serving should be a vitamin C rich food (citrus fruits). One serving should be a vitamin A rich food (dark green, yellow, or bright orange) |
| Bread and Cereal | 4 or more servings |
| Fats, Sweets, Alcohol | Limited amounts since these are high in calories and low in nutrition |

• Empty-calorie snacks can be detrimental to the health of teenagers. Candy, soft drinks, chips, and cookies are available everywhere. If only empty calories are consumed, the body is not supplied with the nutrients needed to maintain health. As a result, the body processes slow down and the teenager may feel tired and irritable. Foods such as pizza, tacos, and hamburgers can be more beneficial choices than high-calorie foods supplying little nutrition, such as candy, soft drinks, and chips.

• Since tea and coffee contain caffeine (coffee–.1 to .15 grams; tea–.1 grams), they should be used in moderation. These beverages work as temporary stimulants and will not prevent fatigue. Soft drinks contribute primarily calories and fluid. Alcoholic drinks act as a depressant to the central nervous system and should be consumed with caution.

## Teaching Aid 2

# PUT ON A HAPPY FACE

Selecting nutritious foods can be quite a challenge for teens. The following game allows students to classify common food choices according to nutrients they contribute to the diet by identifying them as either empty calorie foods or nutritious foods.

**DIRECTIONS**

Duplicate one FACE card for each student in the class. Randomly write nutritious and empty calorie foods from the lists below on each card. This ensures that each card will be different. Have students cut out the tokens and the card. As each food is called, the students will place a happy face over the nutritious food or a sad face over the empty-calorie foods. The game ends when all blocks are completed correctly by a player who calls out "Put On a Happy Face." The teacher needs to verify the correct identification of the foods.

Place a check by foods as each is called out to the class.

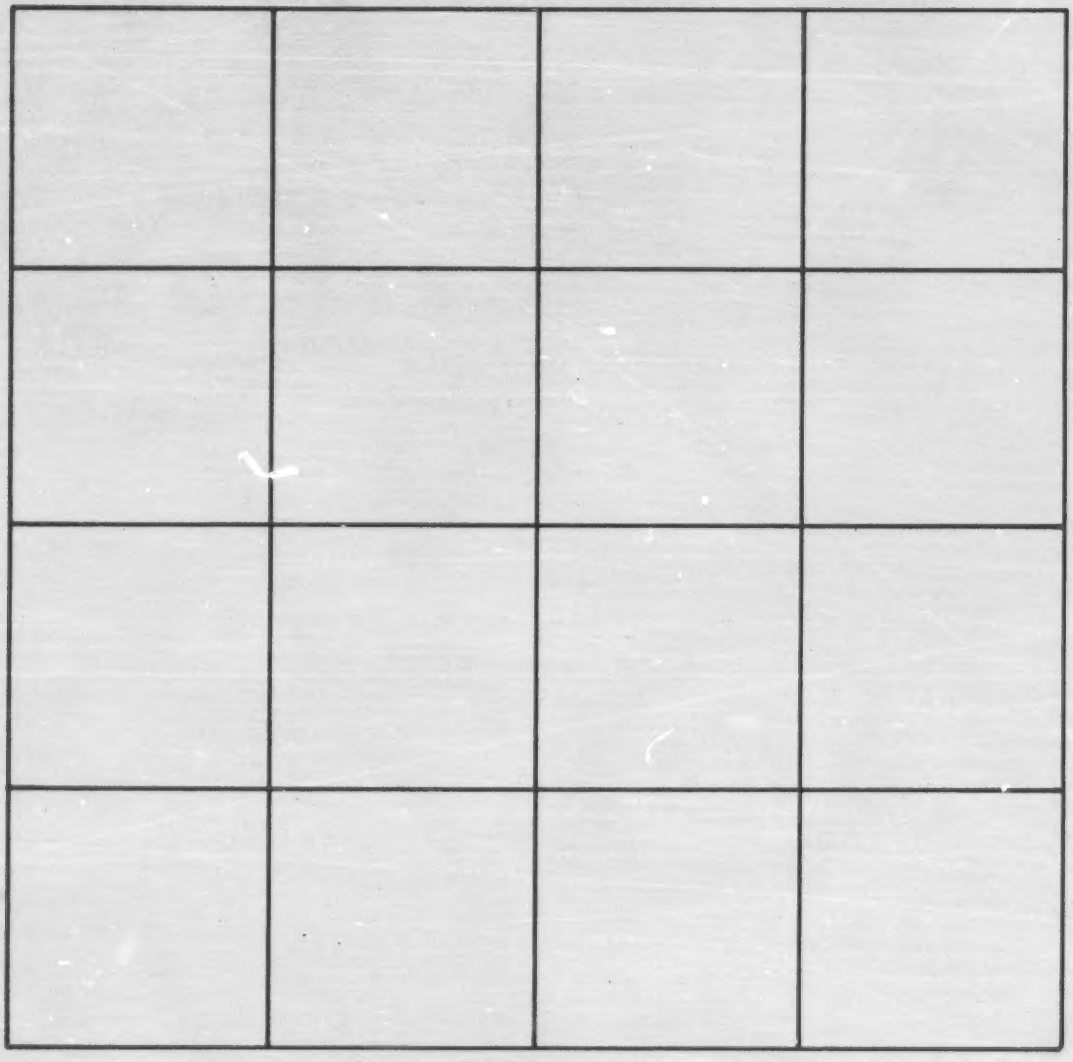
**Nutritious Foods**

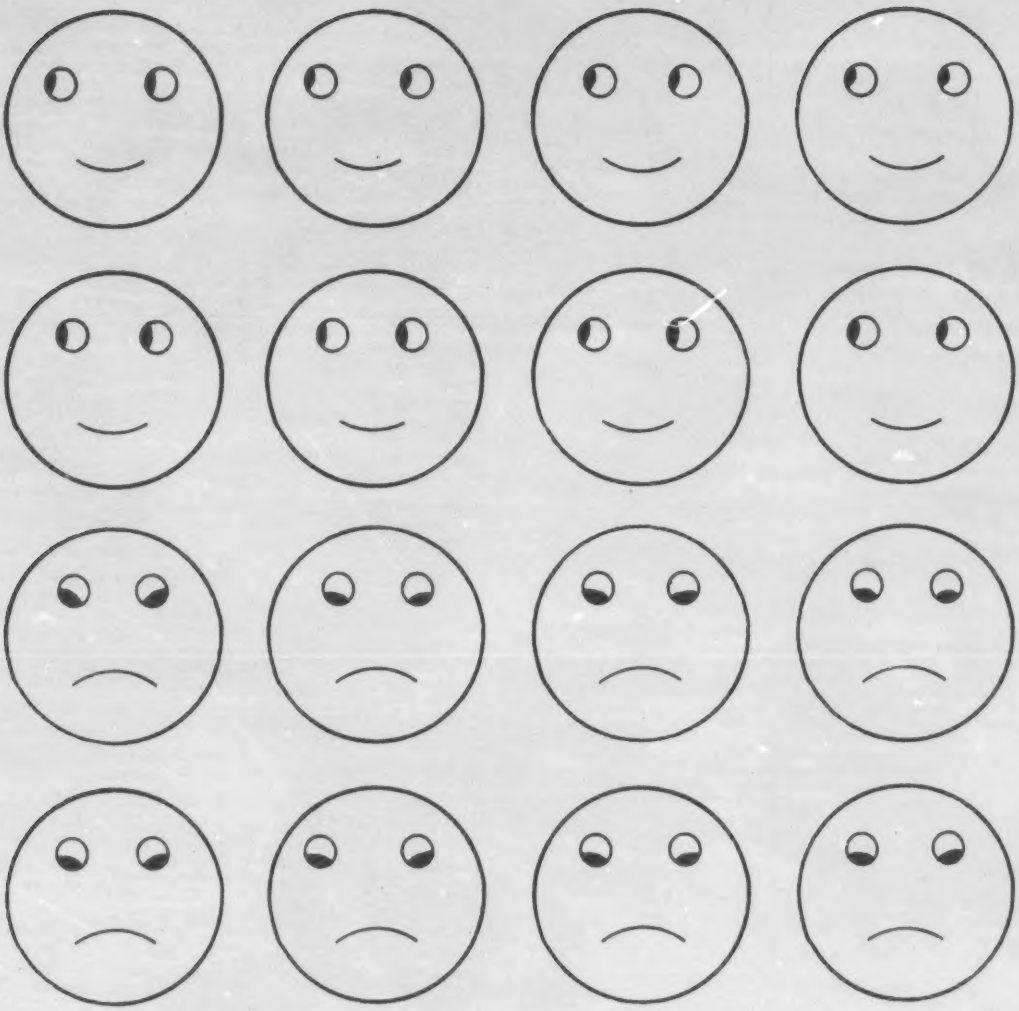
_____ pizza
_____ apple
_____ taco
_____ hamburger
_____ frozen yogurt
_____ carrot sticks
_____ milk
_____ cheese
_____ baked chicken
_____ ice cream
_____ tuna fish
_____ whole-grain crackers
_____ peanut butter
_____ raisins
_____ sunflower seeds (unsalted)
_____ granola
_____ baked potato
_____ tangerine
_____ dried apricots
_____ orange juice
_____ chef salad
_____ egg salad

**Empty-Calorie Foods**

_____ candy bar
_____ potato chips
_____ grape jelly
_____ soft drink
_____ Boston cream pie
_____ glazed donut
_____ chocolate chip
_____ corn chips
_____ pretzels
_____ chocolate syrup
_____ ketchup
_____ toaster pastry
_____ orange drink
_____ cream puff with whipped cream filling
_____ plain gelatin
_____ Popsicle
_____ butter or margarine
_____ Thousand Island dressing
_____ olives
_____ chocolate fudge
_____ honey
_____ jelly beans

# FACE





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## Teaching Aid 3

# POINTS TO PONDER ABOUT NUTRITION FOR ATHLETES

• Athletes often receive nutrition misinformation. The best diet for an athlete is essentially the same as for other people – a well-balanced diet including a variety of foods from the groups included in the Daily Food Guide. Athletes may add additional carbohydrates to provide energy and meet higher caloric needs.

• Athletes who are aware of food intake and its effect on health the entire year can remain in shape year-round without a crash plan to get into shape for the season. So-called diet fitness crash programs are often endorsed by famous athletes and coaches. Such an endorsement does not guarantee that the diet is nutritionally sound. Any effect of an unbalanced diet on performance is purely incidental.

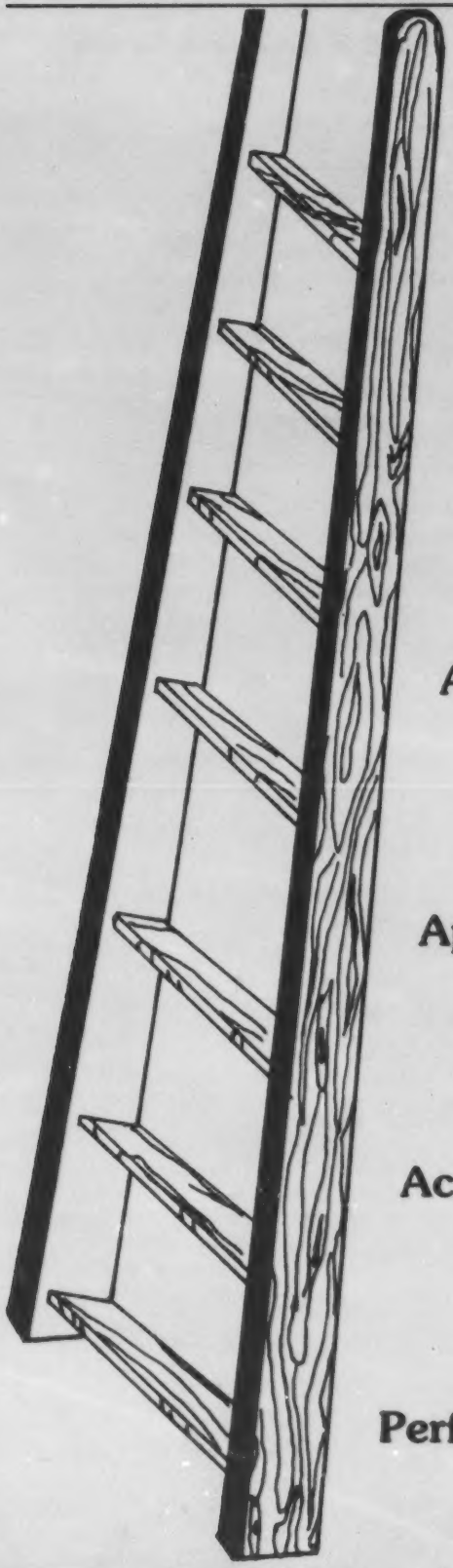
• During training caloric needs increase because of additional energy expenditures. These needs can be met by following a balanced diet and adding additional servings of fruits and vegetables, and breads and cereals. Protein is not needed in the large amount thought necessary for athletes. Excess protein is stored as fat. Carbohydrates provide an efficient energy source and prevent the body from using fat reserves and muscle tissue for energy. High carbohydrate foods such as potatoes, pasta, rice, and whole-grain breads supply a larger variety of nutrients than fats and sweets.

• Salt lost through sweating can be replaced by foods, rather than salt tablets. Everyone needs some salt in the diet–about 230 mg, or one-tenth of a teaspoon of salt per day. The body can receive all the salt it needs through food rather than salt tablets. Teens often consume about 20 times that amount, or a daily average of two teaspoons of salt. Excess salt intake may affect blood pressure, leading to hypertension, especially if such a disease is present among family members. Avoid excess salt intake.

• Liquids are important to the athlete. Leading nutritionists say that the main nutrient athletes need in excess is water. Water serves as a regulator of body temperature and is essential for performance during training or competition. A quart or more of water per day is recommended for athletes. Commercial thirst-quenchers have not been found by research to relieve or provide energy. Water is therefore as effective as any thirst-quencher. Be sure to drink enough liquids. Losing too much water can result in dehydration, which causes loss of body fluid from the cells and prevents normal body functioning.

Teaching Aid 4

# JOB SUCCESS



## NUTRITION AFFECTS

**Attitude**

**Attendance**

**Appearance**

**Accident Inclination**

**Performance Ability**

## Teaching Aid 5

# POINTS TO PONDER ABOUT NUTRITION AND JOB SUCCESS

**• Performance Ability**
Although people may have the talents and abilities needed to perform their jobs, poor nutrition can influence how well they use these talents and abilities. Poor eating habits can produce the following job performance difficulties: inability to concentrate, tiring easily, tendency to make frequent mistakes, less efficient performance, and reduced quantity of work. Good nutrition provides a head start on successfully meeting the challenges of the day!

**• Attitude**
Poor nutrition can result in poor attitudes and a lack of interest in the job. People with poor eating habits often become irritable, uncooperative, and moody. As a result, they may find it difficult to get along with fellow workers.

**• Attendance**
Dependability is an important trait of the employee. Poor nutrition is likely to affect attendance due to resulting illness and longer recuperation periods. Employers tend to overlook employees who are not dependable when awarding promotions.

**• Appearance**
Poor nutrition can result in skin problems, weight problems, and a generally unhealthy appearance, A neat, healthy appearance is related to job success. Those people who feel good about themselves tend to perform more efficiently.

**• Accident Inclination**
The attentions of persons with poor nutrition habits tend to wander. Thus, they have a larger percentage of accidents, many of which could have been prevented with a well-balanced diet.

## Teaching Aid 6

# POINTS TO PONDER ABOUT NUTRITION DURING PREGNANCY

- Nourishing the unborn baby begins before pregnancy. The embryo begins to use nutrients the mother's body already has stored. The fetus' continued healthy pattern of growth depends primarily on the daily food intake of the mother. A mother who consumes a nutritionally adequate diet is more likely to deliver a healthy baby.

- A balanced diet containing a variety of foods is the best way to assure all the nutrients needed for a healthy baby and mother. Iron intake is essential, as well as intake of other vitamins and minerals. Iron and calcium can be stored by the body. Thus, two nutrients which are often lacking in teen diets are ones the mother can store before becoming pregnant.

- Moderate use of salt is recommended for the health of the mother and unborn child, especially if there is a family history of high blood pressure. Experiment with a variety of spices and herbs instead of salt for seasoning.

- Drink several glasses of water daily to help the body absorb the nutrients, carry wastes out of the body, and regulate body temperature.

- Excessive, regular use of alcoholic beverages during pregnancy can result in birth defects. Since a safe level of alcoholic consumption during pregnancy has not been determined, it is advisable to not drink alcohol at all. Fetal alcohol syndrome results from excessive use of alcohol during pregnancy. The U.S. Surgeon General has advised the use of no alcohol during pregnancy. Other physicians advise no more than two alcoholic drinks in a 24-hour period.

- The pregnant teen mother is especially vulnerable to medical risks due to circumstances characteristic of her age group: physiological immaturity, poor nutritional status, inadequate medical care, and lack of education concerning pregnancy.

- Pregnancy is not the time to begin a weight-control program. Current research indicates that weight-reduction programs and severe reduction of calories should not be considered during pregnancy. Severe reduction in calories could eliminate essential nutrients. A well-balanced diet including a variety of foods is the key. The focus is on nutrition.

- Dietary supplements should only be taken as prescribed by the physician.

- Remember to continue daily grooming patterns to help you feel and look your best with a clean face, hair, and body.

- Adequate sleep and exercise continue to be essential to the health of mother and baby. Plan to rest during the day and get adequate sleep at night.

## Teaching Aid 7

# WHAT DO YOU KNOW ABOUT PERSONALIZING NUTRITION?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle T if the statement is True. Circle F if the statement is false.

T F 1. Tea, coffee, and most soft drinks contain caffeine, which is a depressant.

T F 2. Diet and physical fitness programs recommended by famous coaches or athletes are the most effective way for athletes to get into shape.

T F 3. The body can receive all the salt it needs if a well-balanced diet is consumed.

T F 4. Excessive use of alcoholic beverages during pregnancy can result in the baby being born with fetal alcohol syndrome.

T F 5. Major health problems can result for pregnant teenagers because they are physically immature.

**MULTIPLE CHOICE**

**Directions:** For Items 6-15, write the letter for the best response in the blank to the left of the item.

_____ 6. Poor eating habits do *not* usually contribute to which of the following job difficulties?
A. Absenteeism from job
B. Lack of knowledge of procedures
C. Reduced production rate
D. Tendency to have accidents

_____ 7. Teen diets usually supply sufficient amounts of which of the following nutrients?
A. Calcium
B. Carbohydrates
C. Iron
D. Vitamin C

_____ 8. Empty-calorie foods include such items as
A. candy, soft drinks, chips.
B. chips, hamburgers, soft drinks.
C. pizza, hamburgers, tacos.
D. tacos, soft drinks, chips.

_____ 9. Paula is pregnant and the doctor has cautioned her about high blood pressure. To keep her blood pressure under control, which foods should she avoid?
A. Candy, cokes, cookies
B. Chips, snack crackers, pretzels
C. Ice cream, custard, pudding
D. Potatoes, corn, beans

_____ 10. A factor which does *not* usually cause teens to be poorly nourished is
A. concern for weight control.
B. lack of time to fix food.
C. nutritious foods unavailable.
D. peer pressure.

_____ 11. Bob is a football player who needs to supplement his diet for extra energy. What nutrient should he choose?
A. Carbohydrates
B. Fat
C. Protein
D. Sugar

_____ 12. Excess salt intake can cause
A. dehydration.
B. diabetes.
C. hypertension.
D. overweight.

_____ 13. Which of the following nutrients can be reserved in the body for use in future life stages?
A. Iron
B. Phosphorus
C. Vitamin A
D. Vitamin D

_____ 14. Mona, age 17, has learned that she is two months pregnant. She has been on a diet to lose weight. What should she do about her diet?
A. Continue the diet.
B. Discuss the diet with her obstetrician.
C. Omit fats, sweets, and alcohol from diet.
D. Take diet pills to speed weight loss.

_____ 15. The most economical, effective thirst-quencher for an athlete is
A. carbonated beverage such as a cola.
B. commercial thirst-quencher beverage.
C. iced tea with sugar.
D. water.

**MATCHING**

**Directions:** Foods in the Daily Food Guide are recommended on the basis of the nutrients they provide. For Items 16-20, consider the guide's recommendation for teenagers as you match the nutrients with the recommended number of servings by writing the correct letter in the blank. Some number of servings may be used more than once, others may not be used at all.

_____ 13. Which of the following nutrients can be reserved in the body for use in future life stages?
A. Iron
B. Phosphorus
C. Vitamin A
D. Vitamin D

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| NUTRIENTS | RECOMMENDED NUMBER OF SERVINGS |
|---|---|
| _____ 16. Calcium and phosphorus | A. No recommendation |
| _____ 17. Carbohydrates | B. 1 serving |
| _____ 18. Fats | C. 2 servings or more |
| _____ 19. Protein | D. 3 servings or more |
| _____ 20. Vitamin C | E. 4 servings or more |

## Answer Key Teaching Aid 7

# WHAT DO YOU KNOW ABOUT PERSONALIZING NUTRITION?

1. F
2. F
3. T
4. T
5. T
6. B
7. B
8. A
9. B
10. C
11. A
12. C
13. A
14. B
15. D
16. E
17. E
18. A
19. C
20. B

## Answer Key Student Activity 1

# FACT OR MYTH?

1. A. M
   B. F Sweets eaten before the sports event will not improve performance, but they could be used to replace energy expended during the athletic performance. Fruit juices (canned or frozen) are good sources of energy since they already contain sugar–fructose, glucose, sucrose–and other forms of simple carbohydrates.

2. A. M
   B. F The primary energy source is carbohydrates.

3. A. F Since an athlete needs extra energy and higher caloric intake, foods of a greater starch content help the body meet the energy requirement. Care should be given to choose complex carbohydrates rather than simple sugar foods such as sweets, candy, etc.

4. A. M
   B. F Foods in the Meat and Legumes Group are good sources of protein. Favorite foods from this group include hamburger, chicken, fish, peanut butter, and eggs, all good sources of protein.

5. A. F Studies reveal that no difference in energy output or performance results with the inclusion or exclusion of milk in the diet. Milk is an excellent source of high-quality protein and calcium and should be included in the well-balanced diet.
   B. M

6. A. M
   B. F Fat provides a concentrated energy source, makes a meal more satisfying, and provides flavor in food. The fat-soluble vitamins A,D,E, and K, are carried by fats in the diet. When fat is digested, it causes the release of a hormone which slows the emptying time of the stomach. Thus, moderate amounts of properly-fried foods can be included. For preperformance meals, foods low in fat are recommended when the stomach should be emptied faster than usual.

7. A. M
   B. F When milk is mixed with stomach acids, the curdling that results is a necessary process of digestion and does not cause stomach upset. Milk may buffer or neutralize excess acid in the stomach.

8. A. M
   B. F The athlete needs to replace hour by hour the water lost by dehydration. Athletes should be encouraged to drink more water to replace loss during the athletic performance, especially during extremely hot weather.

## Answer Key Student Activity 2

# WHAT CAN NUTRITION DO FOR ANDREW?

1. Poor attendance
   Fatigue
   Irritation
   Inefficiency
   Moodiness
   Inability to get along with employees
   Poor appearance–skin problems, dull hair
   Lack of attention to his actions

2. Get plenty of sleep, at least seven hours.
   Plan for a nutritious breakfast, lunch, dinner, and snacks to include a variety of foods using the Daily Food Guide.
   Get plenty of exercise.
   Get a periodic physical checkup.

3. [NOTE TO TEACHER: Evaluate students' menus using the Daily Food Guide. Because of Andrew's age, additional servings probably may be needed to meet caloric requirements.

| Food Groups | Number of Servings |
|---|---|
| Milk and Milk products | 4 |
| Bread and Cereal | 4 |
| Vegetable and Fruit | 4 |
| Meat and Legumes | 2 |
| Fats, Sweets, and Alcohol | 0 |

## Dietary Guideline 2:

# MAINTAIN IDEAL WEIGHT

## D. Weight Control

**OBJECTIVES**

When students complete this lesson, they should be able to: Explain the relationship of food intake and energy output to weight gain, loss, and maintenance. Describe physical, social, and emotional problems related to being overweight and underweight. Differentiate between high-calorie and low-calorie foods. Determine ideal personal body weight based on age, body build, and level of exercise. Analyze eating habits to determine reasons for weight problems. Develop guidelines for weight loss, weight gain, and weight maintenance.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Weight Control |
| Teaching Aid 2: | Calorie Countdown |
| Teaching Aid 3: | Reasons For Weight Problems |
| Teaching Aid 4: | Heavy Thoughts |
| Teaching Aid 5: | What Do You Know About Weight Control |
| Student Activity 1: | Extras Add Up |
| Student Activity 2: | Weight Is an Individual Matter |
| Student Activity 3: | You Become What You Eat |
| Student Activity 4: | Temptations, Temptations, Temptations! |
| Media Resource 1: | Eat Well, Be Well: Slim Green Goddess |
| Media Resource 2: | Fast Food: A Nutrition Survival Guide |

**KEY WORDS**

calorie
empty-calorie foods
overweight
fad diets
seesaw diet
underweight
anorexia nervosa
ideal weight
pinch test
fatfold measurement
weight control

**INTRODUCTION**

•Listen to the following case study:

Ellen is a high school junior who is 5'7" and weighs 125 pounds. During the summer months for the past year, Ellen has modeled for a local department store. This year she decided to apply for a job as a professional model. The modeling agent told Ellen she would have to lose 10 pounds by next month.

Answer the following questions: What should Ellen do? Should a teenager go on a drastic diet to lose weight? Why are models expected to be so thin? Is this changing? How could she lose 10 pounds safely? [NOTE TO TEACHER: Display pictures of models from popular magazines in the classroom.]

## SUGGESTED ACTIVITIES

- Discuss the role of calories in weight control. Compare calories of different foods you eat. Distinguish between low-calorie, medium-calorie, and high-calorie foods from each of the food groups in the Daily Food Guide. [NOTE TO TEACHER: Stimulate discussion using Teaching Aid 1: Points to Ponder About Weight Control and Teaching Aid 2: Calorie Countdown.]
- Rank order the calorie contributions of potatoes served in different ways using Student Activity 1: Extras Add Up. Often the food itself is not high in calories but what is added to the food is high-calorie. Discuss low-calorie topping ideas for enhancing a baked potato.
- Brainstorm to identify possible reasons for weight problems. Reflect on situations which could lead to weight problems, and suggest alternatives to eating in such situations. [NOTE TO TEACHER: Refer to Teaching Aid 3: Reasons For Weight Problems.]
- Refer to the food diary you kept while discussing Dietary Guideline 1: Eat A Variety of Foods–Daily Food Guide. Mark each high-calorie food you consumed. When are you most likely to eat high-calorie foods? Do these situations correspond to those suggested by class members during brainstorming? How many empty-calorie foods did you consume? What can you do to change your daily food intake to reduce the amount of high-calorie or empty-calorie foods consumed?
- What is your ideal weight? There is no exact answer since you are an individual. Refer to Student Activity 2: Weight Is an Individual Matter to discuss various ways of looking at the question of the "correct" weight.
- Poor eating habits are hard to break. Analyze the situation provided in Student Activity 3: You Become What You Eat. Discuss reasons which lead to diet failure and the importance of a balanced diet to control weight. Formulate "dieting tips" to guide classmates in weight loss, weight gain, and weight maintenance. [NOTE TO TEACHER: Refer to Teaching Aid 4: Heavy Thoughts to stimulate class discussion.]
- Discuss problems teens face when trying to control weight. Answer the questions in Student Activity 4: Temptations, Temptations, Temptations! concerning common problems teens must cope with: adequate exercise, fad diets, fast foods. List additional areas on the chalkboard and discuss ways to survive all these temptations.
- Interview a professional about one of the following ways people control body weight:

  - Weight control organizations. Contact a public health nutritionist, extension home economist, or hospital dietitian.
  - Liquid meals, diet candies, and formula diets. Contact a physician or a hospital dietitian.
  - Fad diets. Contact a public health nutritionist or a hospital dietitian.
  - Diet prescribed by a doctor. Contact your doctor.

Invite the professional to the classroom if it would be helpful. Inquire about the method, its effectiveness, its cost, and its health safety.

## Teaching Aid 1

# POINTS TO PONDER ABOUT WEIGHT CONTROL

### OVERWEIGHT

•Weight problems relate to what we eat as well as to how much we eat. Some foods have more calories per ounce than other foods. To help reduce weight, smaller portions of high-calorie foods should be eaten. The calories in a candy bar aren't any more fattening than those in an apple. Compare the calories of the following foods:
1 medium raw apple = 80 calories
1 sweetened baked apple = 160 calories
One-eighth of a 9-inch apple pie = 300 calories.
The caloric value of the "apple" is more than tripled by the time it becomes a slice of apple pie.

•Foods should be chosen for the nutritional value they provide as well as the caloric value. When choosing foods, pick those that provide necessary nutrients in addition to calories. The Daily Food Guide is a basis for making selections. Beware of including too many food choices from the Fats, Sweets and Alcohol Group since they contribute mostly calories and few nutrients. [NOTE TO TEACHER: Refer to Teaching Aid 2: Calorie Countdown to discuss different calorie levels of foods found in the food groups comprising the Daily Food Guide.]

•Losing weight does not mean eliminating all your favorite foods. Dieting becomes a matter of portion control of favorite foods that are high in calories. Throw away former poor eating patterns and develop new patterns centered on nutritious food selection. Go light on empty-calorie foods you like but which are necessary for optimum health. Often changing the preparation methods of your favorite foods can reduce the calories and allow them to remain in your diet. Switch from frying to stir-frying, broiling, or steaming. Eliminate rich sauces or crusts and go back to the natural flavors of foods. By following these guidelines your life won't be spent counting calories!

•People often get into the habit of seesaw dieting. Weight is lost on a strict diet, the diet is stopped, and the weight is regained. This type of dieting may be hazardous to health. Remember the relation of caloric intake to energy output: 3500 calories = 1 pound of fat. If more calories are taken in than energy output, weight is gained. If fewer calories are consumed than needed for energy, weight is lost. The key to weight control is an equal balance between caloric intake and energy output. Developing good eating habits is essential in establishing eating patterns that help keep your weight at the best level for you.

### UNDERWEIGHT

•Adolescents may use extreme efforts to lose weight. A psychological eating disorder, anorexia nervosa, may develop. This disorder results in extreme underweight and sometimes physical illness. The cause of anorexia nervosa is not known but the disorder is often associated with the extreme desire to be skinny, a negative self-concept, and a lack of maturity to cope with newly-acquired independence.

•Underweight is the opposite of overweight. It results when energy intake does not fully meet energy requirements. Being slightly underweight can be an advantage to the health of mature adults and provide the benefit of increased life expectancy.

## Teaching Aid 2

# CALORIE COUNTDOWN

The chart below illustrates how foods from different food groups vary in calories.

| FOOD GROUP | LOW-CALORIE | MEDIUM-CALORIE | HIGH-CALORIE |
|---|---|---|---|
| Milk and Milk Products | Ice milk<br>½ cup (single dip)<br>(95) | Ice cream<br>½ cup (single dip)<br>(135) | 1 cup vanilla milkshake<br>(255) |
| | 1 cup skim milk<br>(88) | 1 cup 2% milk<br>(120) | 1 cup whole milk<br>(159) |
| Meat and Legumes | 3 oz. lean hamburger (without bun)<br>(185) | 3 oz. regular hamburger (without bun)<br>(235) | 3½ oz. cheeseburger (without bun)<br>(320) |
| | 3 oz. chicken broiled, without skin<br>(141) | 3 oz. round roast<br>(222) | 3 oz. rib roast<br>(374) |
| Bread and Cereals | ½ cup cooked noodles<br>(100) | 6 cheese ravioli with sauce<br>(175) | 1 cup lasagna<br>(345) |
| | 1 slice whole-wheat bread<br>(61) | 2-inch biscuit<br>(103) | 1 cake doughnut<br>(227) |
| Vegetable and Fruit Group | ½ cup cooked cabbage<br>(15) | ½ cup coleslaw<br>(60) | 2 roll stuffed cabbage<br>(260) |
| Fats, Sweets, and Alcohol | 1 teaspoon sugar<br>(15) | 2 tablespoons syrup<br>(120) | 12 fl. oz. cola<br>(145) |
| | 1 slice angel food cake<br>(161) | 1 slice chocolate cake with chocolate icing<br>(365) | 1 slice cheese cake with cherry topping<br>(480) |
| | 1 tablespoon low-calorie French dressing<br>(1) | 1 tablespoon French dressing<br>(65) | 1 tablespoon Blue Cheese dressing<br>(75) |

## Teaching Aid 3

# REASONS FOR WEIGHT PROBLEMS

### OVERWEIGHT

- Problems of overweight may be caused by overeating, inactivity, heredity, eating behavior, dietary patterns, lack of exercise, life-style, personality, or physiological malfunctioning.

- Overweight teens may start out as overweight babies. Family eating patterns influence the personal eating patterns we acquire. Think of family traditions: "A clean plate is the best plate." "Eat it since it's paid for." "The TV is on–where are the munchies?" "Think of the starving children." These patterns may be hard to break.

- Food and feelings may be difficult to separate. Food can be used as a reward, an integral part of celebration, or a way to relieve worry or boredom. When emotions cue food, a weight problem may result.

- A balance must exist between caloric intake and energy output to maintain weight. Lack of physical exercise may result in weight gain. Many overweight teens may not enjoy exercise due to embarrassment, failure, or resentment. Thus, lack of exercise contributes to greater weight problems.

### UNDERWEIGHT

- Underweight may result from physical ailments, excessive activity, tenseness, nervousness, irregular eating habits, or insufficient rest.

- Frequently an underweight person is malnourished because the food intake is not enough to provide all needed nutrients.

- Underweight may result from a physical ailment, such as an intestinal malfunction that interferes with digestion and absorption resulting in a deficiency of all nutrients including calories.

- People who are very active, tense, and nervous may not be malnourished because their diet is sufficient except for calories.

- Irregular eating habits and insufficient rest may contribute to underweight.

- Fat deposits are needed as padding for body organs and nerve plexes and as a reserve supply of energy to draw on in times of stress.

- Severe underweight can cause depression, anemia, loss of muscle tissue, edema due to lack of plasma, and reduced ability to resist infectious diseases such as tuberculosis.

- An excessive concern with slimness and weight loss, and the resulting use of fad diets and semi-starvation can lead to nutritional inadequacy and detrimental effects on health. Possible results include chronic fatigue, listlessness, irritability, depression, dissatisfaction, and chronic malnutrition.

## Teaching Aid 4

# HEAVY THOUGHTS

**Tips for Losing Pounds**
Plan a gradual weight loss of one to two pounds per week.
Cut down on portion sizes, but don't cut out foods from the four main food groups.
Burn more calories in exercise than you consume in food.
Keep a diet diary to find out what and when you eat.
Select cooking methods that cut calories. Use little or no fat, and avoid fried foods which are loaded with calories. Try broiling, baking, or stir-frying instead.
Eat slowly and enjoy the food, company, and relaxation.
Season foods with spices and herbs instead of sauces and condiments.
Eat nutritious, low-calorie snacks.
Serve meals on smaller plates. You'll think you're eating more.

**Tips for Adding Pounds**
Increase weight gradually and steadily.
Use the Daily Food Guide to increase total number of calories.
Eat larger portions of nutritious foods.
Eat several small meals throughout the day if your appetite can't handle large meals.

**Tips for Weight Maintenance**
Weigh yourself weekly to check weight gain or loss. Reestablish your desired weight as soon as possible.
Exercise regularly and decrease or increase caloric intake accordingly.
Follow the Daily Food Guide for a happier, healthier you!
Decrease the amount of activity if it is excessive.
Add foods high in fat, protein, and carbohydrate preferably in combination with other nutrients. High-calorie choices might include: nuts; peanut butter; sunflower seeds; dried beans and peas; dried fruit; whole milk cheese; crackers with cheese, peanut butter, or margarine; meats containing fat; bologna, hot dogs, and other sausages; and vegetables with sauces, salad dressing, or dips.

## Teaching Aid 5

# WHAT DO YOU KNOW ABOUT WEIGHT CONTROL?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle T if the statement is True. Circle F if the statement is False.

T F 1. When trying to lose or gain weight, the most important consideration in choosing foods is caloric value.

T F 2. A fad diet is any diet not based on the Daily Food Guide.

T F 3. To maintain your weight, you must take in the number of calories your body requires for energy.

T F 4. Underweight in teenagers is usually the result of a psychological eating disorder called anorexia nervosa.

T F 5. Overweight babies grow up to be overweight teenagers.

**MULTIPLE CHOICE**

**Directions:** For Items 6-15, write the letter for the best response in the blank.

_____ 6. Stephanie needs to lose five pounds in five weeks. How many calories must she burn to lose one pound per week?
A. 2500
B. 3500
C. 5000
D. 7000

_____ 7. Paul loves chicken–especially fried–but he needs to lose weight. How can he best prepare chicken so he can still eat it and lose weight?
A. Barbecue
B. Saute
C. Oven-fry
D. Stir-fry

_____ 8. Ideal weight is based on
A. age, height, sex.
B. bone size, sex, age.
C. height, bone size, age.
D. sex, bone size, height.

_____ 9. Carrie needs to gain weight, but she prefers a modified vegetarian diet. Which of the following is the most nutritious way to *increase* her caloric intake?
A. Cook vegetables in chicken broth.
B. French-fry the vegetables.
C. Saute vegetables in butter.
D. Use cheese sauce over vegetables.

_____ 10. Which of the following would be the most nutritionally acceptable way to lose weight?
A. Go on a fad diet.
B. Join a weight-control group.
C. Take diet pills or eat diet candies.
D. Use a diet prescribed for you by your doctor.

_____ 11. What factor does *not* usually influence a teen's selection of a weight-loss diet?
A. Concern for future well-being.
B. Peer pressure
C. Personal values
D. Self-concept

_____ 12. Maintaining ideal body weight is possible by
A. eating smaller portions than usual.
B. including mostly vegetables and fruits in the diet.
C. omitting fats, sweets, and alcohol from the diet.
D. taking in only as many calories as you use.

_____ 13. Anorexia nervosa is *not* the result of a
A. desire to be skinny.
B. hereditary disorder.
C. lack of maturity.
D. negative self-concept.

_____ 14. Ideal weight charts are developed by
A. American Dietetics Association.
B. insurance companies.
C. physicians' associations.
D. United States Health Department.

_____ 15. The fat-measurement obtained through a "pinch test" is used to
A. determine which muscles need to be strengthened.
B. determine a person's nutritional status.
C. indicate areas of flabbiness.
D. predict a person's tendency to gain weight.

## MATCHING

**Directions:** If you want to gain or lose weight, you may need to change your eating habits. In Items 16-25, match the behaviors with the diet practices and write the correct letter of each in the blank.

BEHAVIORS

_____ 16. Avoid empty-calorie foods.

_____ 17. Cut down on portion sizes.

_____ 18. Eat high-calorie foods.

_____ 19. Eat nutritious low-calorie snacks.

_____ 20. Eat several meals during the day.

_____ 21. Exercise regularly.

_____ 22. Keep a diet diary.

_____ 23. Plan a gradual, steady weight change.

_____ 24. Relax and enjoy eating.

_____ 25. Use the Daily Food Guide.

PRACTICES

A. To gain

B. To lose

C. To gain or lose

## Answer Key Teaching Aid 5

# WHAT DO YOU KNOW ABOUT WEIGHT CONTROL?

1. F
2. F
3. T
4. F
5. F
6. B
7. D
8. D
9. D
10. D
11. A
12. D
13. B
14. B
15. B
16. C
17. B
18. A
19. B
20. A
21. C
22. B
23. C
24. C
25. C

## Answer Key Student Activity 1

# EXTRAS ADD UP!

Often it isn't the food itself that is high in calories, but what is added to the food. Think of how you like potatoes served. What happens to the calories in a potato as it is served in different ways? Rank order the calorie contributions in the different variations of the potato from low (1) to high (5).

| CALORIE CONTRIBUTIONS[1] | RANK | ONE MEDIUM-SIZED POTATO |
|---|---|---|
| 115 | 2 | Baked with 1 tablespoon sour cream, pepper, and chives. |
| 300 | 4 | Cut in strips and French-fried. |
| 90 | 1 | Baked with salt and pepper added. |
| 575 | 5 | Sliced thin into potato chips and fried. |
| 125 | 3 | Baked with 1 teaspoon butter, salt, and pepper. |

List five low-calorie toppings for a baked potato:

(1) Mock sour cream (cottage cheese and lemon juice whipped in the blender)

(2) Melted butter or margarine thinned with lemon juice

(3) Toasted sesame seeds

(4) Dried herb mixture: parsley, chives, dill, basil, oregano

(5) Chopped onion with coarsely grated pepper

(6) Herb-spiced yogurt

[1]Values based on "Nutrition Labeling, Tools For Its Use," USDA Agriculture Information Bulletin No. 382

## Answer Key Student Activity 3

# YOU BECOME WHAT YOU EAT

1. List Alfreda's poor eating habits.
   Alfreda skips meals.
   Alfreda's nutrition misinformation on caloric value of foods leads to poor food choices.
   Alfreda associates feelings with eating.
   Alfreda is trying to crash diet to lose weight.

2. How do these eating habits affect her body weight?
   Alfreda will not lose weight unless she takes in fewer calories than she burns as energy. Seesaw weight gains and losses may result.

3. How do calories in food choices affect body weight?
   Weight is lost if more calories are burned for energy than are consumed.
   High-calorie food choices tend to result in excess calories which will be stored as body fat.

4. How did Alfreda's food choices match her weight goal?
   Alfreda's food choices did not match her weight goal since she chose high-calorie foods. Calories should be chosen for the nutritional value they provide.

5. What are the nutritional hazards of the fad diet Alfreda may try?
   Essential nutrients obtained by consuming a variety of foods are not included in most fad diets.

6. Plan a low-calorie daily menu which provides a total daily caloric intake of 1200 calories.

## Answer Key Student Activity 4

# TEMPTATIONS, TEMPTATIONS, TEMPTATIONS![1]

1. Juan
   Earline

2. Diet does not encourage good eating habits.
   Meals are not well-balanced.
   Essential nutrients needed from meat and legumes, breads and cereals, and vegetables are not obtained.
   Caloric content may not be adequate for the body needs.
   Fad dieting could lead to poor eating habits throughout life.

3. A. 3
   B. 5
   C. 4
   D. 1
   E. 2

   Choice for lunch – tacos.

[1]Caloric values from **Dietetic Currents** 8:2 (March-April, 1981). Published by Ross Laboratories, Columbus, Ohio.

## Dietary Guideline 2:

# MAINTAIN IDEAL WEIGHT

## E. Meal Planning

**OBJECTIVES**

When students complete this lesson, they should be able to: Identify common causes of breakfast skipping. Give examples of ways to encourage breakfast eating. Describe physical and mental performance when breakfast is eaten and when it is omitted. Analyze personal daily food choices. Plan traditional and nontraditional breakfasts using the Daily Food Guide. Plan a day's menu considering the various factors of meal planning.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Breakfast |
| Teaching Aid 2: | Avoid Midmorning Slump |
| Teaching Aid 3: | Which Breakfast for You? |
| Teaching Aid 4: | Points to Ponder About Planning Daily Food Choices |
| Teachind Aid 5: | What Do You Know About Meal Planning? |
| Student Activity 1: | Inattentive: What's the Problem? |
| Student Activity 2: | Breakfast Probe |
| Student Activity 3: | Skipping Breakfast May Be Hazardous to Your Health |
| Student Activity 4: | Turning Breakfast Skippers into Breakfast Eaters |
| Student Activity 5: | Focus on Breakfast |
| Student Activity 6: | Bet You've Never Tried These |
| Student Activity 7: | Planning for the Day |
| Media Resource 1: | Eat Well, Be Well:<br>New French Toast<br>Tuna Quiche |

**KEY WORDS**

balanced breakfast
midmorning slump
nontraditional breakfast
traditional breakfast
meal planning

**INTRODUCTION**

Study the photo situation in Student Activity 1: Inattentive: What's the Problem? List possible reasons why students are inattentive. Discuss how breakfast skipping might affect the way you feel and do things in the morning.

**SUGGESTED ACTIVITIES**

- Survey classmates to learn what they think about breakfast. Use Student Activity 2: Breakfast Probe to conduct your own school or classroom survey. [NOTE TO TEACHER: Surveys reveal a significant number of students who are not eating breakfast. A study conducted by the Department of Health, Education, and Welfare revealed that as many as one out of four students attend school without breakfast.] Based on the results of your own school study, conduct a breakfast campaign focusing on the importance of starting the day with breakfast. Suggestions include: breakfast poster contests, school assembly programs on breakfast, nontraditional breakfast contests, elementary school programs on breakfast, or school newspaper articles.
- Discuss the purposes of breakfast as a contributor to good health. [NOTE TO TEACHER: Refer to Teaching Aid 1: Points to Ponder About Breakfast.] List on the board possible side effects of skipping breakfast. [NOTE TO TEACHER: Use Teaching Aid 2: Avoid Midmorning Slump.] Discuss possible causes of and solutions for the midmorning slump.
- Breakfast may be skipped for many reasons. Rank order the suggested list of reasons breakfast may be skipped on Student Activity 3: Skipping Breakfast May Be Hazardous to Your Health. Tally the responses on the chalkboard. Discuss the alternatives and the pros and cons of each decision. Vote on the best choice for breakfast in given situations.
- Determine possible solutions to the breakfast problem. Examine each problem provided in Student Activity 4: Turning Breakfast Skippers Into Breakfast Eaters and determine possible solutions. [NOTE TO TEACHER: Suggested solutions are provided in the answer key.]
- Breakfast need not be skipped when dieting. Compare the caloric value of the breakfasts provided in Teaching Aid 3: Which Breakfast For You? and determine which breakfast would be the best choice when trying to lose weight. If breakfast is skipped, a high-caloric midmorning snack may become a temptation, and larger portions may be eaten at other meals.
- Use your personal daily food intake from the Watch Your Mouth Student Activity in Dietary Guideline I: Daily Food Guide. Analyze your personal food intake using Student Acitvity 5: Focus on Breakfast. Refer to Student Activity 6: Bet You've Never Tried These for nontraditional breakfast ideas.
- Prepare nontraditional breakfast foods in the foods laboratory. Focus on breakfast foods which are low in fat and sugar as well as those that can be prepared in a hurry. Refer to the Eat Well, Be Well, segment, "New French Toast" for ideas for laboratory experiments.
- Favorite breakfast foods can often be altered to reduce sugar and fat. List favorite breakfast food combinations on the board and determine possible ways to alter the breakfasts to reduce sugar and fat intake. Suggestions include:
  - Presweetened cereals replaced with low-sugar cereals
  - Whole milk replaced with lowfat or skim milk
  - Pancakes topped with unsweetened applesauce or other fruits instead of syrup
  - High-fat cheeses, such as Cheddar or Swiss, replaced with lowfat cheeses, such as mozzarella or cottage cheese.
- Consider the total picture. What factors influences planning food choices for the day? What factors should be considered when planning a menu for breakfast, lunch, and/or dinner? [NOTE TO TEACHER: Use Teaching Aid 4: Points to Ponder about Planning Daily Food Choices.]
- Use Student Activity 7 to plan a day's menu using the factors from Teaching Aid 4. Evaluate according to family preferences, color, texture, shape, flavor, and temperature.
- List on the chalkboard reasons you are likely to skip lunch or dinner. Identify possible alternatives you might choose to skipping these meals. What quick-to-fix meals are favorites in your family? Are some of these suggestions low-calorie as well? If you must skip a meal, why is choosing nutritious snacks even more important?

## Teaching Aid 1

# POINTS TO PONDER ABOUT BREAKFAST

•Start the day with breakfast as a first step toward good health and good nutrition. Breakfast is usually the first food eaten after a 10 to 12 hour fast. During this fast the blood glucose level, which provides body fuel, is reduced. Breakfast foods supply the necessary nutrients to raise the blood glucose level from the fasting level. [NOTE TO TEACHER:Refer to Teaching Aid 2: Avoid the Midmorning Slump.]

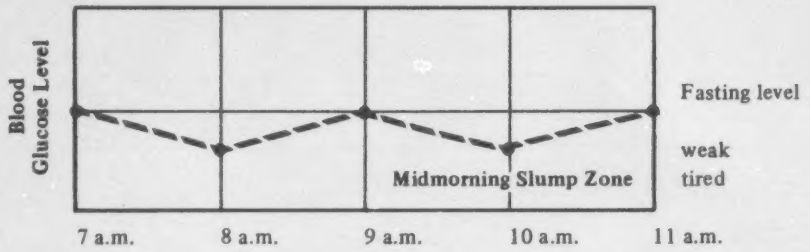
•When breakfast is skipped, one-fourth to one-third of the nutrients needed for the day are often not replenished. Thus, without these necessary nutrients to provide the body with "go power," you become less alert, decrease your work output, and react to situations more slowly. Headaches, stomach cramps, and irritability may occur when breakfast is skipped. Studies show that by skipping breakfast, attitudes and academic achievement may be affected negatively since the body is denied adequate fuel for energy.

## Teaching Aid 2

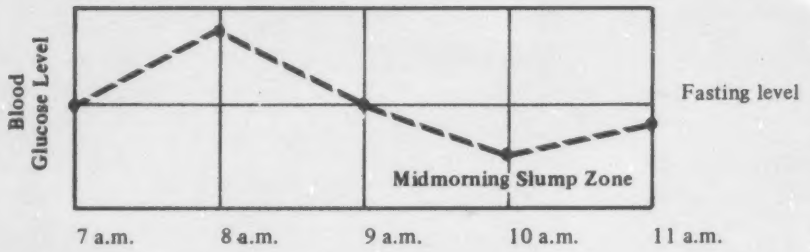
# AVOID THE MIDMORNING SLUMP[1]

To maintain an adequate blood glucose level, food is required in the morning. A morning meal of approximately 40 grams of carbohydrates and 12-18 grams of protein helps the body avoid a midmorning slump!

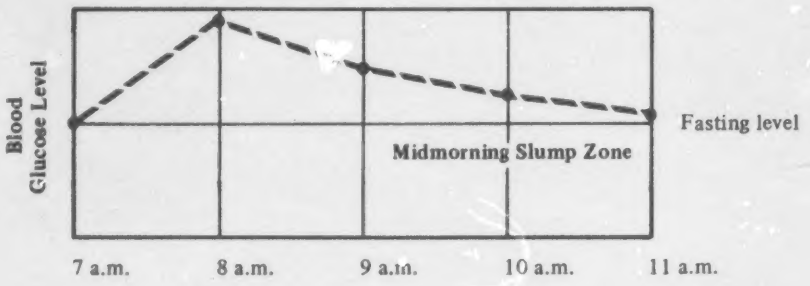
Skips Morning Meal
Energy must come from limited glucose stored in body
Carbohydrate 0 grams
Protein 0 grams




High Carbohydrate Morning Meal
Ex: 2 yeast doughnuts and ½ cup orange juice
Carbohydrate 45 grams
Protein 6 grams




Meets Morning Meal Needs
Ex: ½ cup orange juice
1 slice whole-wheat toast with 2 tbsp. peanut butter
8 oz. milk
Carbohydrate 43 grams
Protein 20 grams




[1]M.E. Downing and M.C. Mapes, "Food in the Morning" Ithaca, NY: Cornell University.

## Teaching Aid 3

# WHICH BREAKFAST FOR YOU?

**300 Calorie Breakfast**
Vegetable juice cocktail or tomato juice cocktail, ¾ cup (35)
Plain cornflakes, 1 oz. (110)
with ½ cup skim milk (45)
Whole-wheat toast, 1 slice (65)
Margarine, 1 teaspoon (35)

**400 Calorie Breakfast**
Orange juice, ¾ cup (90)
Plain cornflakes, 1 oz. (110)
with ½ cup skim milk (45)
and one-half banana (50)
Whole-wheat toast, 1 slice (65)
Margarine, 1 teaspoon (35)

**500 Calorie Breakfast**
Orange juice, ¾ cup (90)
Plain cornflakes, 1 oz. (110)
with ½ cup skim milk (45)
and one-half banana (50)
Whole-wheat toast, 2 slices (130)
Jam, 1 teaspoon (20)
Ham, 1 slice 1½ oz. (65)

## Teaching Aid 4

# POINTS TO PONDER ABOUT PLANNING DAILY FOOD CHOICES

•Most families must make food choices within a budgeted amount of money. Protein foods usually cost the most, but foods such as legumes and eggs are nutritious, inexpensive meat substitutes or meat extenders. Milk and Milk products are also good sources of protein. Fruits and vegetables are the second most costly food group. Prices vary widely depending on the form–dried, frozen, fresh–and the season. Breads and cereals are the least expensive food group.

•Food preferences must also be considered when making food choices for the day. The wider the range of preferences, the more likely you are to meet the requirements of the Daily Food Guide.

•Food choices will be influenced by your senses – taste, smell, touch, sight and even hearing. There are four basic tastes to consider: sweet, sour, bitter, salty. The aromas of food stimulate or depress the appetite. Colors and shapes appeal to the eye and the sound of foods–especially crunchy ones add interest to the diet.

•When planning meals or making food choices consider these guidelines:

1) Consider how the foods will look on the plate. Use a variety of colors, sizes and shapes to create eye appeal. Garnishes can be used to add color but the foods should be the main feature.

2) Avoid repeating flavors in a meal, and be sure to have a balance of sweet, sour and salty.

3) Variety in texture is important in planning meals. Common food textures include hard, chewy, smooth, crisp, sticky, dry, soft, gritty, tough, and moist. Avoid serving two or more dishes that have the same texture in the same meal.

4) The temperature of foods can affect the meals acceptability. Serve cold foods cold and hot foods hot. Also create appeal by using a variety of temperatures in a meal.

•Meals should be planned for the entire day to ensure meeting Daily Food Guide requirements. Snacks should be included in the day's plan to avoid overeating.

## Teaching Aid 5

# WHAT DO YOU KNOW ABOUT MEAL PLANNING?

### TRUE AND FALSE

**Directions**: For Items 1-10, circle T if the statement is True. Circle F if the statement is False.

T F 1. Research has found that as many as one out of four students do not eat breakfast before going to school.

T F 2. When you are on a weight-loss diet, skipping breakfast is an acceptable way to cut down calories.

T F 3. Nontraditional breakfast foods are usually higher in sugar and fat content than traditional breakfast foods.

T F 4. Skipping breakfast can have a negative effect on academic achievement and work performance.

T F 5. Only a traditional breakfast supplies the balance of nutrients recommended by the Daily Food Guide.

T F 6. Quick meals are less nutritious than traditional meals.

T F 7. Most of the day's food choices should be made from four of the Daily Food Guide Groups.

T F 8. Food choices are influenced by your senses – taste, smell, touch, sight, and hearing.

T F 9. The temperature of food has little effect on the acceptability of meals.

T F 10. Snacks should be added after Daily Food Guide requirements are met through meals.

### MULTIPLE CHOICE

**Directions**: For Items 11-20, write the letter of the best response in the blank.

_____ 11. When a meal is skipped, the body converts energy from
A. carbohydrates.
B. glucose.
C. glycerin.
D. sucrose.

_____ 12. The best breakfast to help avoid the midmorning slump would be
A. apple juice, pancakes and syrup, coffee.
B. grapefruit juice, cheese toast, milk.
C. orange juice, hot cereal with butter, coffee.
D. tomato juice, scrambled eggs, milk.

_____ 13. Common effects of skipping breakfast do *not* include
A. anemia.
B. headaches.
C. irritability.
D. stomach cramps.

_____ 14. The most nutritious breakfast for a person who likes to sleep late, instead of allowing time for breakfast, would be
A. presweetened cereal and milk.
B. ham and cheese sandwich and orange juice.
C. scrambled egg, bacon, and milk.
D. toast, jelly, and milk.

_____ 15. A good breakfast will supply approximately
A. 12-18 grams protein and 30 grams carbohydrate.
B. 12-18 grams protein and 40 grams carbohydrate.
C. 20-24 grams protein and 30 grams carbohydrate.
D. 20-24 grams protein and 40 grams carbohydrate.

_____ 16. Meals will be more appealing if they are
A. nutritious.
B. similar each day.
C. varied.
D. quick to prepare.

_____ 17. The most expensive foods are
A. milk and milk products.
B. protein.
C. fruits and vegetables.
D. breads and cereals.

_____ 18. The aroma of food
A. stimulates the appetite.
B. depresses the appetite.
C. either a or b.
D. neither a nor b.

_____ 19. When planning meals, your main source of color should be
A. food.
B. garnishes.
C. tableware.
D. linens.

_____ 20. Flavors in a meal should be
A. mostly sweet and sour.
B. mostly sweet and salty.
C. similar.
D. varied.

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## Answer Key Teaching Aid 5

# WHAT DO YOU KNOW ABOUT MEAL PLANNING?

1. T
2. F
3. F
4. T
5. F
6. F
7. T
8. T
9. F
10. F
11. B
12. B
13. A
14. B
15. B
16. C
17. B
18. C
19. A
20. D

## Answer Key Student Activity 4

# TURNING BREAKFAST SKIPPERS INTO BREAKFAST EATERS

Breakfast may be skipped or skimped for a variety of reasons. Read each problem listed below and determine a possible solution to transform the breakfast skipper into a breakfast eater.

| PROBLEM | SOLUTION |
|---|---|
| I'd rather sleep than eat, so I don't have time for breakfast. | Set the alarm a few minutes earlier. Plan breakfast the night before and get utensils and ingredients ready. Plan quick, simple meals. Plan a healthy snack to be eaten on the run. |
| I don't like scrambled eggs and toast. | Eat last night's leftovers for breakfast. Eat nontraditional breakfast foods, such as pizza, tacos, a hamburger, or peanut butter and apple slices. Eat a variety of foods. |
| I'm trying to lose weight. | Eat a low-calorie, balanced breakfast to avoid snacking on high-calorie food at midmorning or overeating at other meals. |
| I don't feel hungry early in the morning. | Eat later. Get dressed first; eat afterwards. Take a breakfast food with you to eat later. Begin with one food time and slowly add more to your breakfast. |

## Dietary Guideline 2:

# MAINTAIN IDEAL WEIGHT

## F. Snacking

**OBJECTIVES**

When students complete this lesson, they should be able to: Explain the contribution of nutritious snacks to the daily diet. Differentiate between nutritious snacks and empty-calorie snacks. Analyze daily food intake to determine personal snacking habits. Plan nutritious snacks that contribute to a balanced diet. Prepare nutritious snack foods.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Snacking |
| Teaching Aid 2: | Fishing for a Nutritious Snack? |
| Teaching Aid 3: | Planning Snacks |
| Teaching Aid 4: | Nibbler's Notebook |
| Teaching Aid 5: | Taste-Testing Ideas |
| Teaching Aid 6: | What Do You Know About Snacking? |
| Student Activity 1: | Munchy Mix-up |
| Student Activity 2: | Make Your Munchies Count |
| Student Activity 3: | Snacks Count |
| Student Activity 4: | Nutritious Snack Campaign |
| Media Resource 1: | Eat Well, Be Well: Strawberry Yogurt Pops Oatmeal Scones |
| Media Resource 2: | Snacks - The Food You Hate To Love |
| Media Resource 3: | The Instant Energy, Sugar Coated, Fast Food Nutrition Kit |

**KEY WORDS**

empty-calorie snack
nutritious snack
taste panel
tasting party

**INTRODUCTION**

Unscramble the words found in Student Activity 1: Munchy Mix-Up. Use the circled letter of the unscrambled words to form two new secret words. These words will be the focus of the lesson. Explain how nutritious snacks can contribute to a daily well-balanced diet.

## SUGGESTED ACTIVITIES

• Snacks are considered part of your total food intake. Discuss the role of snacking as a nutritious contribution to the daily diet. Identify foods from the Daily Food Guide which make nutritious snack choices. Discuss the importance of selecting nutritious snacks rather than empty-calorie snacks. [NOTE TO TEACHER: Stimulate discussion using background information from Teaching Aid 1: Points to Ponder About Snacking and reinforce with the bulletin board suggested in Teaching Aid 2: Fishing for a Nutritious Snack?]

• View Teaching Aid 3: Planning Snacks and discuss guidelines to use when planning snacks. Identify ways snacks can contribute essential nutrients to the daily diet.

• Participate in an experimental foods lab. Use your creativity to alter popular snack foods to include nutritious ingredients, or develop your own original snack foods. Present a chart showing the nutritive value of one serving of your snack food and compare it with the nutritive value of the original recipe. Class members will serve as the "taste panel" for the snack foods. Compile the newly developed recipes into a "Nibbler's Notebook of suggested snack recipes and a taste panel scale for snack creations.]

• Analyze the situations described in Student Activity 2: Make Your Munchies Count. Record your snack choices from the alternatives provided. Determine the nutritive values of the snacks you chose, and compare with the established Recommended Dietary Allowances (RDAs) to reveal the contribution your snacks make to your daily food intake. Busy schedules often lead to increased snacking and skipping of regular meals. Snacks can supply your body needs if planned wisely. If you rely more on snacking than on regular meals, plan snacks with nutritional requirements in mind.

• Review the role of nutritious snacks in the daily diet by completing the word jumble found in Student Activity 3: Snacks Count.

• Tasting parties can be used in elementary, middle, and senior high school to introduce nutritious snacks. Tasting parties give you a chance to try a variety of foods from the Daily Food Guide. Plan and implement a tasting party for an elementary, middle, or senior high class to introduce nutritious snack foods. [NOTE TO TEACHER: Refer to Teaching Aid 5: Taste-Testing Ideas for guidelines in conducting tasting parties. A sample tasting party for an elementary class is provided.] Plan a school campaign to promote nutritious snacks. Develop fact sheets, posters, campaign buttons, or name tag stickers to promote nutritious snacks. Suggested ideas are included in Student Activity 4: Nutritious Snack Campaign.

• Brainstorm to name nutritious drinks to substitute for soft drinks. Recipes for nutritious fruit and milk drinks could be used to supplement the discussion.

## Teaching Aid 1

# POINTS TO PONDER ABOUT SNACKING

• Snacks can supply your body with nutrients that regular meals lack. If planned with a balanced diet as the major goal, snacks can contribute food value to the daily diet.

• Use the Daily Food Guide to help develop a munching plan. Suggestions for snack foods that will help meet dietary needs include:
Milk Group – low-fat dairy foods such as milk, cheese, or yogurt
Meat and Legumes Group – tuna, hard-cooked eggs, peanut butter, or unsalted nuts
Vegetable and Fruit Group – dried fruits, juices, fresh vegetables or fruits with dip
Bread and Cereal Group – whole-grain products such as bread for sandwiches, or crackers

• Empty-calorie snacks are high in calories and have few or no nutrients. Foods such as soft drinks, candy bars, and chips satisfy hunger pangs but contain low nutritional value in proportion to the caloric content. Foods rich in protein, vitamins, and minerals reduce hunger pangs and make a nutritional contribution to the daily diet.

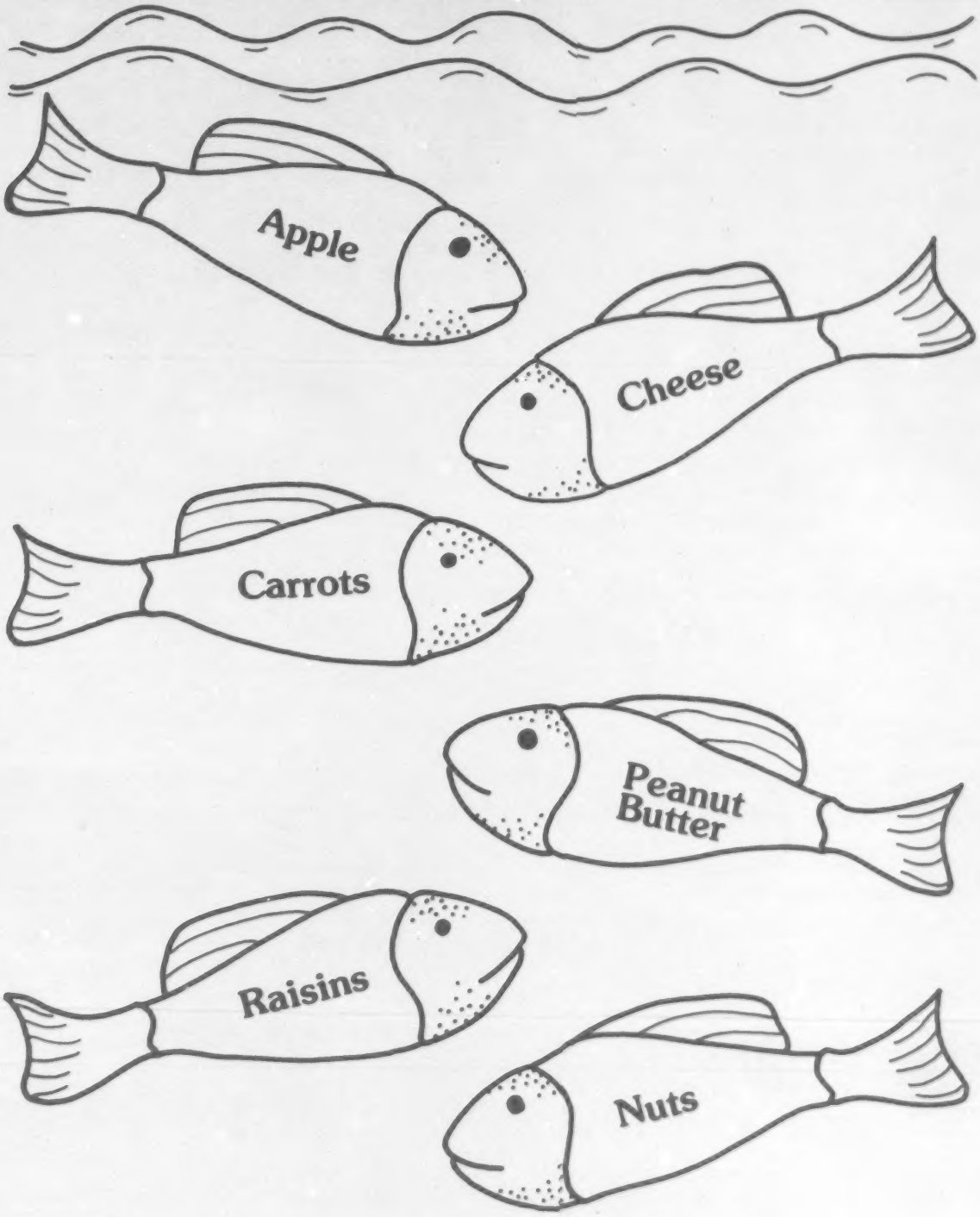
• The caloric content of snack items must be included in total daily calories. Check the nutrition label on the product for the percentages of the U.S. RDAs present. A nutritious snack will generally provide at least 10 percent of the RDAs and 200 calories or less per serving. Remember to evaluate the snack food nutritionally.

• Snacks should be planned so they do not interfere with regular meals. Snacking can be good for you if snacks are chosen carefully as part of a balanced diet. Junk foods, such as potato chips, packaged cakes and pies, cookies, soft drinks, and candy, are low in nutritive value but high in calories, fat, and cost in terms of nutrients received. Why not peel a banana rather than unwrap a candy bar.

• Choose a wide variety of nutritious snacks. The more narrow your snack choices, the more likely you are to miss important nutrients. Busy schedules often result in replacing regular meals with snacks. Plan your snacks wisely to meet your body's nutritional needs. These "mini-meals" can contribute the nutrients essential for health.

• Keep in mind that certain foods if eaten together as in regular meals increase absorption of nutrients. For example, consuming ascorbic acid (vitamin C) and meat protein at the same time increases iron absorption. These are often eaten in combination at regular meals and should be considered when choosing snacks. For example: bacon and tomato sandwiches or avocado and ham slices.

# FISHING FOR A NUTRITIOUS SNACK?



Teaching Aid 3

# PLANNING SNACKS

Ease of Preparation

Caloric Content

Time Available

WHAT SNACK TO MAKE

Nutrient Contribution to Daily Diet

Food Preparation Skills Necessary

Occasion

Cost

Convenience

Appeal (Taste and Appearance)

Persons Who Will be Eating

## Teaching Aid 4

# NIBBLER'S NOTEBOOK

Creative snacks can be nutritious as well as fun. The following recipe is an adaptation of a sugar cookie recipe now packed with added nutrition!

**Delicious Dynamos**
¾ cup whole-wheat flour
¼ cup wheat germ
¼ cup nonfat dry milk powder
¾ teaspoon salt
¼ teaspoon baking powder
¼ teaspoon soda
½ cup peanut butter
¾ cup honey
1 egg
1 teaspoon vanilla
1 cup raisins
1 cup dried apricots, snipped
¾ cup quick-cooking oats
½ cup chopped walnuts
Stir together flour, wheat germ, milk powder, salt, baking powder, and soda. Set aside. Beat together butter, peanut butter, and honey. Add egg and vanilla; beat well. Add flour mixture and mix well. Stir together remaining ingredients and add to mixture. Mix well and drop rounded teaspoonfuls onto ungreased cookie sheet. Bake at 350° F for 10-11 minutes. Let cool on cookie sheet 1 minute; remove to wire rack to cool completely. Yield: 4½ to 5 dozen cookies. Additional suggested ingredients: ¼ cup unsalted sunflower seeds, ½ cup carob chips (omit dried fruit).

**TASTE PANEL RATING SCORE**

| | Excellent | Unacceptable |
|---|---|---|
| Appearance | | |
| Flavor | | |
| Texture | | |
| Ease of preparation | | |

Comment or description:

_____

I'd prepare it. _____ Yes _____ No
I'd eat it if served. _____ Yes _____ No
It would be a hit with my friends. _____ Yes _____ No

**TASTE PANEL RATING SCORE**

| | Excellent | Unacceptable |
|---|---|---|
| Appearance | | |
| Flavor | | |
| Texture | | |
| Ease of preparation | | |

Comment or description:

_____

I'd prepare it. _____ Yes _____ No
I'd eat it if served. _____ Yes _____ No
It would be a hit with my friends. _____ Yes _____ No

## Teaching Aid 5

# TASTE-TESTING IDEAS

Tasting parties can be used in elementary, junior, or senior high schools. They can be used to introduce new foods and recipes. Through tasting parties, students can be exposed to a wide variety of nutritious snacks.

Steps in planning and conducting tasting parties:

1. Plan who will be tasting the foods, what foods are to be tasted, and the time and location of the tasting party. A class of 25 students is an ideal size.

2. Request the permission of the principal and the cooperation of the teachers in the school where the tasting party is to be held. Explain the purpose of the tasting party, foods to be tested, preferred class size, time, and location. Several parents could also be invited (i.e.,officers in the PTA).

3. Conduct the tasting party when participants are hungry. Immediately following lunch is not a good time for a taste test. If you experience rejection of any items, encourage the students to at least try the foods. Stress that to learn to like foods we should continue tasting and eating them.

4. Supply each participant with a small portion of the food(s) to be tasted.

5. Home economics students can conduct tasting parties with students in elementary classrooms. This experience not only exposes elementary students to nutritious snacks but reinforces the concept in home economics students as they present the lesson. Don't overlook the recruitment value of such a project.

Two examples of tasting parties which might be carried out by food and nutrition students are:

Taste-testing party to introduce new foods and recipes to junior or senior high students.
Peter Rabbit tasting party to introduce elementary students to nutritious food choices for snacks.

Prepare nutritious snacks made from nutritious ingredients.

**Peanut Balls**
½ cup honey
½ cup peanut butter
1 cup nonfat dry milk
1 cup uncooked quick cooking oatmeal (not instant or regular)
Wash your hands before handling food. Measure ½ cup honey and ½ cup peanut butter into a bowl. Add and stir in 1 cup nonfat dry milk and 1 cup oats. Drop rounded teaspoonfuls on a sheet of waxed paper or a clean plate. Shape each spoonful into a rounded ball. Place balls on a plate to serve.
Yield: About 24

**Crunchy Munchies**
4 cups uncooked quick oats
1 cup chopped nuts
1 1/3 cups raisins
2/3 cup wheat germ
¼ teaspoon cinnamon
½ cup margarine, melted
¼ cup honey
Combine oats, nuts, raisins, wheat germ, and cinnamon. Mix together margarine and honey and pour over ingredients. Mix well. Press firmly onto a well-greased 9" X 13" pan. Bake at 350° F for 20 minutes. Cool thoroughly and store in an airtight container.

**Fundoodles**
Let students create their own snacks by using the suggested spreads and a variety of foods:

**Peanut Power Spread**
1 cup peanut butter
¼ cup raisins

**Crunchy Cheese Spread**
1 cup cream cheese, softened
½ cup raisins
½ cup chopped nuts

For each spread, mix ingredients thoroughly. Makes about 1 cup spread each. Use in combination with any of the following:

Carrot sticks or slices
Cheese cubes
Apple wedges
Orange slices
Bread slices
Nuts
Celery sticks
Cauliflower pieces
Banana slices
Melon balls
Graham crackers
Raisins

Equipment you will need:

Small bowls
Paring knife
Tablespoons
Napkins or paper towels
Toothpicks
Vegetable peeler
Large cookie cutters
Knives for spreading
Waxed paper

**Objective**
The student will give examples of fruits and vegetables as nutritious food choices for meals and snacks.

**Materials needed**

1. Copy of The Tale of Peter Rabbit by Beatrix Potter. Enlarged pictures from story on posters, flannel board, flip chart, or transparencies, (i.e., Flopsy, Mopsy, Cotton-tail, Peter, Mrs. Rabbit, Mr. McGregor, vegetables in Mr. McGregor's garden, etc.)

2. Flash cards with the following words printed on them. (If possible include a picture of the word on the card. Key questions can be printed on the back of each card. These are the foods discussed in the story:

| | | |
|---|---|---|
| Bread | Potatoes | Blackberries |
| Carrots | Cabbages | Parsley |
| Lettuce | Peas | Cucumbers |
| Beans | Onions | Gooseberries |
| Radishes | Currants | Camomile Tea |
| Milk | | |

3. Daily Food Guide poster

4. Five grocery bags with the following words printed on each:

| | |
|---|---|
| Milk | Vegetable/Fruit |
| Bread/Cereal | Fats, Sweets, and Alcohol |
| | Meat/Legumes |

5. Sample tray of a typical school lunch using life-size food models or pictures of foods. (i.e., cheeseburger on bun, lettuce/tomato, French fries with ketchup, peach half, milk)

6. Foods to be tasted (examples: carrot sticks, celery sticks, radish roses, squash, broccoli spears, cauliflower, turnip slices, cherry tomatoes)

7. The poster "Versatile Vegetables: See How They Grow" available from: Green Giant Company; Consumer Services Dept., Chaska, Minnesota 55318 "Vegetable Poster Series" Cost: $.10

8. **Vegetable Dip**

| | |
|---|---|
| 1 tablespoon milk | ¼ cup chopped parsley |
| 12 oz. carton of lowfat creamed | dash cayenne |
| cottage cheese | 1 teaspoon onion salt |
| ¼ cup salad dressing or mayonnaise | ¼ teaspoon, garlic powder |

Place milk, cottage cheese, salad dressing, garlic powder, parsley, cayenne, and onion salt in blender and blend. Pour mixture into cabbage head container and chill. If desired, substitute dressing mix for garlic powder, cayenne, onion salt, and parsley.

## Teaching Aid 6

# WHAT DO YOU KNOW ABOUT SNACKING?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle T if the statement is True. Circle F if the statement is False.

T F 1. If you rely on snacking for most of the foods you eat, you should use the Daily Food Guide to plan snacks.

T F 2. The most nutritious snacks for quick energy are found in the fats, sweets, and alcohol food group.

T F 3. If your meals meet the RDAs, any food can be eaten as a snack.

T F 4. A nutritious snack will generally provide at least 10 percent of the RDAs and 200 calories or less per serving.

T F 5. The wider the variety of snacks you eat, the more likely you are to consume important nutrients.

**MATCHING**

**Directions:** For Items 6-10, match the snack food with the food group that it represents by writing the correct letter in the blank.

| SNACKS | FOOD GROUPS |
|---|---|
| _____ 6. Flavored yogurt | A. Bread/Cereal |
| _____ 7. Granola | B. Fats/Sweets/Alcohol |
| _____ 8. Potato chips | C. Meat/Legumes |
| _____ 9. Raisins | D. Milk/Milk products |
| _____ 10. Unsalted peanuts | E. Vegetable/Fruit |

## Answer Key Teaching Aid 6

# WHAT DO YOU KNOW ABOUT SNACKING?

1. T
2. F
3. F
4. T
5. T
6. D
7. A
8. B
9. E
10. C

## Answer Key Student Activity 1

# MUNCHY MIX-UP

**DIRECTIONS**
Unscramble the words below. Use the circled letter of each of the unscrambled words to form two new secret words. The secret words will be the focus of today's lesson.

| | | |
|---|---|---|
| 1. | ENROAG | ORA(N)GE |
| 2. | CIEJU | J(U)ICE |
| 3. | RCRTOA | CARRO(T) |
| 4. | CRLIBCOO | B(R)OCCOLI |
| 5. | CEI MRACE | (I)CE CREAM |
| 6. | RYGOTU | YOGUR(T) |
| 7. | HDIRSA | RAD(I)SH |
| 8. | WCRAUEOLLIF | CAULIFL(O)WER |
| 9. | TPUENA RBUETT | PEANUT B(U)TTER |
| 10. | ECSHEE | CHEE(S)E |
| 11. | SNTU | NUT(S) |
| 12. | RNAISI | RAISI(N) |
| 13. | ABNNAA | BANAN(A) |
| 14. | CRUECBUM | (C)UCUMBER |
| 15. | KMLI | MIL(K) |
| 16. | SCRREAKC | CRACKER(S) |

The Secret Words Are NUTRITIOUS SNACKS

## Answer Key Student Activity 2

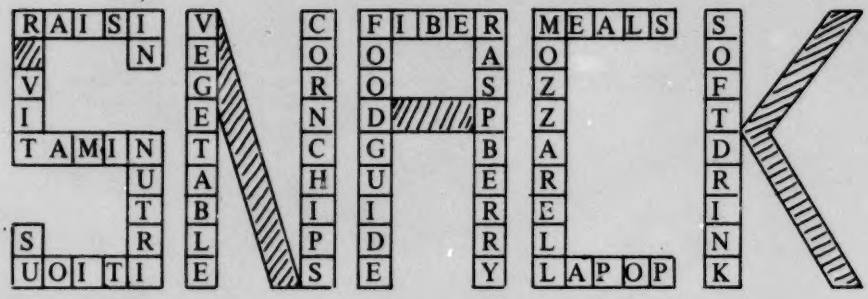
# MAKE YOUR MUNCHIES COUNT

| Food Item | Nutrient Contributions | | | | |
|---|---|---|---|---|---|
| | Protein (g) | Calcium (mg) | Iron (mg) | Vitamin A (IU) | Vitamin C (mg) |
| 1. Orange (1) | 1.0 | 54.0 | .5 | 260.0 | 66.0 |
| 2. Sunflower Seeds (½ cup) | 15.0 | 87.0 | 5.3 | 35.0 | -- |
| 3. Bran cereal muffin (1) | 3.0 | 57.0 | 1.5 | 90.0 | -- |
| 4. Tuna salad sandwich (4 oz.) | 15.0 | 20.0 | 1.3 | 295.0 | 1 |
| Whole-wheat bread (2) | 6.0 | 48.0 | 1.6 | -- | -- |
| Raisin-carrot salad | 1.0 | 40.0 | 2.0 | 8145.0 | 5 |
| Milk (8 oz.) | 8.0 | 291.0 | .1 | 310.0 | 2 |
| 5. Banana (1) | 1.0 | 10.0 | .8 | 230.0 | 12 |
| Cheese (1 oz.) | 7.0 | 204.0 | .2 | 300.0 | 0 |
| Crackers (4) | 4.0 | 14.0 | 1.0 | 0 | 0 |
| 6. Egg (1) | 6.0 | 28.0 | 1.0 | 260.0 | 0 |
| Fresh broccoli (½ cup) | 2.5 | 68.0 | .6 | 1940.0 | 70 |
| Fresh carrots (1) | 1.0 | 41.0 | .8 | 12100.0 | 9 |
| Fresh cauiiflower (1 cup) | 3.0 | 26.0 | 1.3 | 70.0 | 90 |
| Cottage cheese dip | 7.0 | 38.0 | .1 | 40.0 | -- |
| Yogurt (8 oz.) | 12.0 | 415.0 | .2 | .10 | 2 |
| 7. Fresh apple | -- | 10.0 | .4 | 120.0 | 6 |
| Ice cream (4 oz.) | 2.5 | 88.0 | .5 | 270.0 | .5 |
| 8. Chicken sandwich (3 oz.) | 18.0 | 18.0 | 1.3 | 200.0 | 3 |
| Whole-wheat bread (2) | 6.0 | 48.0 | 1.6 | -- | 0 |
| Apple juice (8 oz.) | -- | 15.0 | 1.5 | -- | 2 |
| RDA Calculators | | | | | |
| Male | 56 g | 1200 mg | 18 mg | 5000 IU or 1000 RE | 60 mg |
| Female | 46 g | 1200 mg | 18 mg | 4000 IU or 800 RE | 60 mg |

## Answer Key Student Activity 3

# SNACKS COUNT

**DIRECTIONS**
Fill in the puzzle using the appropriate word. Some items will continue in another direction to complete the word.




**Across**
1. A nutritious snack choice high in iron.
4. A source of roughage found in whole-grain snacks.
6. Most of the food people eat is consumed at _____.
10. A low-sugar snack that is nutritious if eaten without butter or salt: _____corn. (Try it with Parmesan cheese.)

**Down**
2. Eaten raw with dip, this snack is packed with nutrients.
3. A crunchy corn snack which is higher in salt and fat than in nutrient contributions to the diet.
4. A source to use in planning snack choices, The Daily _____ _____.
5. Red fruit that grows on a bush and makes a nutritious snack.
6. A lowfat cheese that makes an excellent snack to eat with whole-grain crackers.
7. An empty-calorie snack popular with teens.
8. Nutrient found in snacks from the Vegetable and Fruit group.
9. These snacks contain a variety of nutrients that contribute to a balanced diet.

## Dietary Guideline 3:

# AVOID TOO MUCH FAT

**OBJECTIVES**
When students complete this lesson, they should be able to: Explain the function of fat in the body. Give examples of foods high in fat content. Compute from the caloric values of foods the percentage of calories provided by fat. Distinguish between saturated and unsaturated fat sources of food. Analyze food labels to determine fat present in food products. Determine guidelines for reducing fat in the daily diet. Associate fat intake with health problems such as heart disease and atherosclerosis. Prepare foods utilizing lowfat cooking methods.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Fat |
| Teaching Aid 2: | Saturated Fat Find |
| Teaching Aid 3: | Tips for Lowfat Living |
| Teaching Aid 4: | Cholesterol Debate |
| Teaching Aid 5: | Stir-Fry Tips |
| Teaching Aid 6: | Stir-Fry Techniques |
| Teaching Aid 7: | What Do You Know About Fat? |
| Student Activity 1: | Fat Find |
| Student Activity 2: | A Look at the "Light" Foods |
| Student Activity 3: | Trim Off the Fat |
| Student Activity 4: | Fat Facts |
| Media Resource 1: | Eat Well, Be Well:<br>Beef Stroganoff<br>Cheese Tostados<br>Crispy Baked Chicken<br>New French Toast<br>Scalloped Potato Casserole<br>Stir-Fried Chicken<br>Tuna Quiche |
| Media Resource 2: | NEWtrition 7 |
| Media Resource 3: | The Instant Energy, Sugar Coated, Fast Food Nutrition Kit |
| Media Resource 4: | A Nutrition Survival Kit |

**KEY WORDS**

| | | |
|---|---|---|
| arachidonic acid | fatty acids | stir-fry |
| atherosclerosis | linoleic acid | unsaturated fats |
| cholesterol | linolenic acid | wok |
| essential fatty acids | saturated fats | |

## INTRODUCTION

View a display of the following items:

100 grams (approximately ½ cup) of water
1 stick (½ cup) margarine or butter, or ½ cup shortening (fat)
½ cup granulated sugar (carbohydrate)
½ cup unflavored gelatin (protein)

Using the caloric values listed on the chalkboard, match each item on display with the correct caloric value. Compare your responses to the actual caloric values of the items. Brainstorm to identify foods that are composed primarily of fats, carbohydrates, and proteins. Compare the caloric values of these foods to determine if fats are higher in calories than carbohydrates and proteins. [NOTE TO TEACHER: Display the food items listed above. Record the following caloric values on the board: 900 calories, 400 calories, 400 calories, 0 calories. After students have matched the food item with the caloric value, place the display items in order of highest to least number of calories: fats (9 calories per gram; 100 grams = 900 calories) carbohydrates and proteins (4 calories per gram; 100 grams = 400 calories.)

## SUGGESTED ACTIVITIES

- Discuss the function of fats in the body. Explain how fat, the nutrient, and fat, the body substance, are both vital to health. Give examples of sources of fats in the diet. Discuss the differences between saturated and unsaturated fats. Research the process of hydrogenation and relate it to sources of dietary fat. Classify the foods in Student Activity 1: Fat Find into saturated and unsaturated fats. [NOTE TO TEACHER: Refer to Teaching Aid 1: Points to Ponder About Fat to stimulate discussion.]
- Keep a list of all the foods you have eaten in the past 24 hours. Use a food composition table to determine the number of calories and grams of fat present in each food. Star foods you consider to be low in fat. Use the following formulas to determine the percent of fat each food contributed to your diet:
  a. Calories provided by fat = fat (grams) x 9 (calories per gram)
  b. Percent calories provided by fat = calories provided by fat ÷ total caloric value of food item

Compare the foods you thought were low in fat to the actual percentage of calories provided by the fat in these foods. Were they actually low in fat or did they contribute 25 percent or more fat to your daily food intake?

- Brainstorm to identify foods that contain "hidden fats." Make a poster or bulletin board to illustrate the foods using magazine pictures or drawings of the foods. Indicate the number of total calories and the number of calories provided by fat beside each food. Display the posters in the cafeteria or classroom. Suggestions for foods high in "hidden fats" include: whole milk, tuna fish salad, roasted almonds, peanut butter, avocados, milk chocolates, cream cheese, and sour cream.
- Compare the saturated fats of different cuts of meat on the transparency in Teaching Aid 2: Saturated Fat Find. Current recommendations are that no more than 10 percent of the daily caloric intake be from saturated fats. Answer the following questions:

Which cuts of meat are higher in fat content?
What size serving do you normally eat?
What low-fat cuts of meat could you include in your diet?
How do meat substitutes compare in fat content with various meat cuts?

[NOTE TO TEACHER: To increase students' awareness of the weight of foods illustrated on the transparency, display the actual weighed portions of the food items using food scales.]

- Compare labels on "lighter" versions of favorite foods. The food industry is developing products which have been reduced in fats, sugars, and calories compared to the old favorites. Use the chart in Student Activity 2: A Look at the "Light" Foods to compare the labels of products available in the supermarket.
- Analyze the case study in Student Activity 3: Trim Off the Fat to determine guidelines for reducing fat in the daily diet. Compile the guidelines you formulate for Chuck in Student Activity 3 into an article on low-fat diets for the school newspaper. [NOTE TO TEACHER: Refer to Teaching Aid 3: Tips for Low-fat Living for suggested guidelines.]
- Complete the crossword puzzle in Student Activity 1: Fat Find. Discuss how the words used in the puzzle relate to dietary fat. Create your own crossword puzzles or word scrambles using key words associated with dietary fat. Work in groups to develop puzzles and exchange them with other students. Display the completed puzzles in the classroom as a review of the key words, or publish outstanding puzzles in the school newspaper.
- Research the current controversy relating cholesterol and saturated fats to health problems. Present your information in the form of a television talk show. On the talk show, interview personalities such as Physician–Dr. Chole S. Terol; Nutritionist–Samuel Saturate; Researcher–Dr. Alice Artery; and Patient–Ms. Helen Heart. Discuss the issues surrounding cholesterol and saturated fats with each talk show guest. Include both the positive and negative sides of each issue. Suggested questions include:

  Why is cholesterol such a controversial issue?
  What is cholesterol? Is it needed by the body?
  What are the primary food sources of cholesterol?
  What influences individual blood cholesterol levels?
  What health problems have been associated with cholesterol intake?
  How are people reducing dietary cholesterol intake?
  What are your conclusions on the cholesterol issue?

[NOTE TO TEACHER: Refer to Teaching Aid 4: Cholesterol Debate for background information.]
- Prepare foods in the foods laboratory utilizing low-fat cooking methods. Experiment with cooking methods such as broiling, roasting, steaming, poaching, and stir-frying. Compile a recipe booklet of recipes adapted to reduce fat content or publish the recipes in the school newspaper. [NOTE TO TEACHER: Refer to Teaching Aid 5: Stir-Fry Tips for guidelines in using the stir-fry technique. Illustrations of the steps in stir-frying are included in Teaching Aid 6: Stir-Fry Techniques.]

## Teaching Aid 1

# POINTS TO PONDER ABOUT FAT

•Your major concern about fat may be in eliminating it from your diet or reducing it from your body! However, fats play an important role in your body. Excess fat is stored as body fat which is your major energy reserve. When your body needs extra energy, the fatty tissue is broken down into fatty acids and burned as energy. The three most common essential fatty acids are linoleic, and arachidonic acids. Fat is the most concentrated food source of energy–one gram of fat supplies nine calories compared to four calories for the same amount of protein and carbohydrates.

•In addition to providing an energy reserve for your body, fat has other functions: Fat transports fat-soluble vitamins in the bloodstream. These vitamins include A,D,E, and K. In this way fat also contributes to your body's utilization of other nutrients. For example, fat transports vitamin D in the bloodstream so that your body can use calcium, the mineral which promotes the formation of bones and teeth. Fat provides protection for internal organs from extreme temperatures and shocks. Fat gives a feeling of fullness or satiety after eating since digestion of fat takes longer than other foods. Fat provides a layer of insulation to your body and helps keep you warm.

•The amount of fat needed in the diet varies among individuals. Fat deficiencies are uncommon in the United States since so many common foods contain fat. Lack of adequate fat intake may result in drying, itching, and scaling skin. The result of too much fat in the diet is weight gain and its related diseases. Since so many of our foods contain fat, it is recommended that Americans reduce their fat intake. However, you should not eliminate completely all foods containing fat. Nutritionists recommend that percentages of body fat to total weight should be:
Females: 20 to 25 percent body fat
Males: 15 to 18 percent body fat.
To promote good health, watch your fat intake, but do not eliminate fat from your diet.

•Fat may be classified into saturated and unsaturated fats. Saturated fats are contained in animal sources primarily. Foods such as butter, shortening, bacon, beef, cheeses, and whole milk contain large percentages of saturated fats. Vegetable sources are mostly unsaturated fats. Vegetable oils, peanut oils, sunflower oils, corn oils, and soft margarines are sources of unsaturated fats.

## Teaching Aid 2

# SATURATED FAT FIND

| Food | Saturated Fat |
|---|---|
| Lamb chop, 3 oz., broiled | 14.8 grams |
| Rib roast, 3 oz., cooked | 14 grams |
| Round steak, 3 oz., braised | 5.5 grams |
| Pork chop, 2.7 oz., lean & fat, broiled | 8.9 grams |
| Pork roast, 3 oz., lean & fat | 8.7 grams |
| Tuna fish, 3 oz., oil-packed, drained | 1.7 grams |
| Haddock, 3 oz., fried | 1.4 grams |
| Chicken, 3 oz., roasted | 1 gram |
| Turkey, 3 oz., roasted, light meat | .9 grams |
| Pork and beans, 1 cup | 2.4 grams |
| Peanut butter, 2 tablespoons | 3 grams |
| Whole milk, 1 cup | 5 grams |
| Skim milk, 1 cup | 0 grams |

[1]Saturated fat values from: "Nutritive Value of Foods," USDA Home and Garden Bulletin 72, revised 1977.

## Teaching Aid 3

# TIPS FOR LOWFAT LIVING

"Lowfat living" need not be drab and unappetizing. The following guidelines can add spice to your daily food intake the lowfat way!

- Choose lean meats and keep portions to three ounces approximately. The amount of marbling in meats provides a clue to the fat content. Poultry (chicken and turkey) and fish (with the exception of shellfish) contain relatively less fat than beef. Pork chops are also an excellent choice because of their lean meat. Remember to trim away all excess fat before cooking. Removing the skin from poultry will reduce calories and fat. Beware of processed meats such as luncheon meats, frankfurters, and sausage, all of which are high in fat.

- Broil, roast, or stir-fry meats rather than frying or stewing them. Preparing meats by broiling allows the fat to drip into the broiler pan to be discarded. Stews, stocks, or soups made with meat can be chilled, and the fat skimmed off the top. When ready to eat, reheat and serve.

- Replace whole milk and whole-milk products with lowfat or skim milk products. Skim milk may replace whole milk in preparing food items such as creamed soups, white sauces, and baked foods. Lowfat yogurts and ice milks can replace whole-milk products. Try substituting yogurt for mayonnaise or sour cream in recipes. When adding yogurt to heated sauces, add at the end of cooking to prevent curdling. Stir gently. Switch to lowfat cheeses, such as mozzarella, cottage cheese, Parmesan, and ricotta.

- Limit your intake of egg yolks to three to four per week. Egg whites are an excellent source of protein while the yolk is high in cholesterol. Experiment with substituting two egg whites for one whole egg. Try omelets, pancakes, or French toast with two whites for each yolk.

- Avoid using butter, lard, or bacon fat in seasoning and cooking. Substitute instead polyunsaturated vegetable oils and margarine. Products containing vegetable shortenings do not contain animal fat but may contain saturated coconut oils. The labels are the keys to determining fat content. Reduce the amount of oil and shortening used when sauteeing or frying foods. Try nonstick vegetable spray coatings or nonstick pans.

- Peanut butter is a high-fat food. Processed brands of peanut butter also have "hidden" sugar and salt added.

- Avocados can be classified more as a fat than a fruit. One-eighth of an avocado contains the same amount of fat as a pat of butter, so eat sparingly.

## Teaching Aid 4

# CHOLESTEROL DEBATE

Why is cholesterol such a controversial issue these days? We have all heard about cholesterol—probably as a warning to "stay away" from it! What exactly is the debate about?

•Cholesterol is a complex fat produced by your body tissues. It is a necessary part of all cells, and plays an active role in the synthesis of sex and adrenal hormones as well as vitamin D. Researchers suggest that cholesterol also has a role in the body repair process. Cholesterol has been linked with coating the nerves to facilitate proper nerve conduction and brain function.

•Cholesterol occurs in all animal tissues. Sources include primary meats (such as liver, veal, lamb, and beef), egg yolks, and dairy products (such as whole milk and cheeses). Cholesterol occurs in very small amounts in plant sources.

•Many factors influence blood-cholesterol concentration. These factors include sex, age, weight loss or gain, exercise, and diet. High blood-cholesterol levels may cause a build-up of deposits in the arteries of some people. As this build-up increases, the arteries become clogged, and the blood flow slows down. As a result, the heart must work harder to push the blood through the clogged arteries. Artherosclerosis, or hardening of the arteries, is thought to be related to too much cholesterol. Many researchers have identified a relationship between cholesterol and heart disease.

•Controversy exists on the relationship of diet to blood-cholesterol levels. Many people are restricting their intake of eggs, high-fat meats, and whole milk in an effort to reduce the saturated fats in their diets. Use is increasing of polyunsaturated fats, such as margarine, corn oils, and vegetable oils, and fresh fruits and vegetables.

•The relationship of cholesterol to health problems is still a mystery. There is no explanation why some people who eat foods high in cholesterol develop heart diseases while others consuming the same degree of high-cholesterol foods do not. The exact relationship of cholesterol to heart disease and artherosclerosis remains unknown. Be aware of current developments on this issue in the news as more information is discovered.

## Teaching Aid 5

# STIR-FRY TIPS

•Stir-frying is a common Chinese cooking technique in which thinly sliced vegetables and meat, fish, or poultry are cooked in a small amount of hot oil at a high temperature. Constant stirring and lifting during cooking allows the ingredients to cook quickly, maximizing the nutritient value and crisp texture.

•The traditional equipment used for stir-frying is a round-bottomed, metal pan with high sides called a wok. Any large, heavy skillet may be used for stir-frying.

•The key to a successful stir-fry product is to have ingredients correctly sliced and ready to toss into the wok or skillet at the appropriate time. Lifting and stirring the ingredients during the cooking produces the crisp, crunchy texture and distinct flavors that are typical of this cooking technique.

•The following recipes are suggested for use with the stir-fry technique:

**Stir-Fried Walnut Chicken**
1 pound boneless chicken, cut into pieces
1 tablespoon cornstarch
1 tablespoon water
1 egg white
3 tablespoons soy sauce
1/3 cup chicken broth
1 tablespoon polyunsaturated vegetable oil
3 green onions, cut into slivers
1 teaspoon ginger
1 medium clove garlic, chopped
¼ cup walnuts, chopped
Remove skin from chicken and cut into small pieces. Mix together 1 tablespoon cornstarch, water, and egg white. Add chicken and toss until thoroughly coated. Mix soy sauce and 1/3 cup chicken broth and set aside. Heat 1 tablespoon of the polyunsaturated vegetable oil in a wok or skillet over high heat. Stir-fry chicken for 3-5 minutes or until almost cooked. Add onions, ginger, and garlic and stir-fry 1 minute. Add soy sauce and chicken broth mixture and walnuts. Cook until sauce has thickened. Serve over rice. Serves 4.

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**Stir-fried Beef and Broccoli**

1 pound top or bottom round steak
2 tablespoons soy sauce
1 minced garlic clove
1/8 teaspoon ground ginger
2 teaspoons polyunsaturated vegetable oil
2 cups broccoli flowerets
½ cup minced fresh red pepper
1 cup beef broth
1½ tablespoons cornstarch

Cut the meat into 1-inch strips. Mix together the soy sauce, minced garlic, and ginger. Marinate the beef in this mixture for 20 to 30 minutes. Heat the oil in the wok or heavy skillet over moderate heat until the oil begins to sizzle. Remove the meat from the marinade and stir-fry until brown on both sides. Add the broccoli. Cook until tender, stirring constantly with a wooden spoon (about 5 minutes). Add the minced pepper and stir-fry 1 to 2 minutes. Combine broth, cornstarch, and the reserved marinade; stir into mixture in the skillet. Cook until sauce thickens. Serve over rice. Serves 4.



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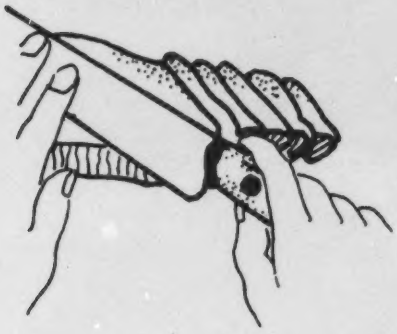
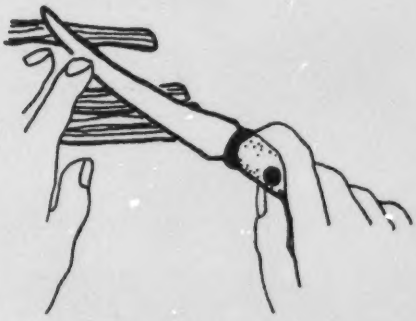
## Teaching Aid 6

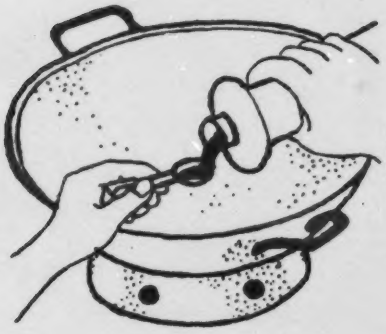
# STIR-FRY TECHNIQUES



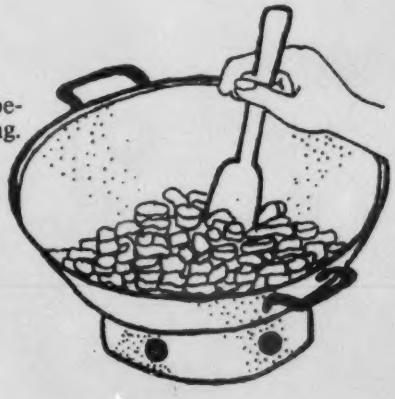
Assemble necessary ingredients. Slice vegetables, meat, fish, or poultry thinly. These may also be diced, shredded, or stripped before cooking.



Slice thinly using a sharp knife to assure crisp, colorful results.



Polyunsaturated vegetable oil or peanut oil withstands high heat without smoking. Add oil to the wok when a drop of water sizzles on the wok's surface.



Toss ingredients with a long handled wooden spoon or special wok utensil. Lift and stir constantly to prevent burning.

If using a thickener, such as cornstarch, dissolve in liquid before adding to the wok to prevent lumping. Cook until thick. Serve immediately.

## Teaching Aid 7

# WHAT DO YOU KNOW ABOUT FAT?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle the T if the statement is True. Circle the F if the statement is False.

T F 1. Fats have the most concentrated caloric value of any food—nine calories per gram.

T F 2. The fastest way to lose weight safely is to eliminate fat, sugar, and alcohol from your diet.

T F 3. "Lighter" versions of food have been developed to reduce their cholesterol content.

T F 4. People who eat foods high in cholesterol will develop heart disease.

T F 5. Nutritionists recommend a higher percentage of body fat for women than for men.

**MULTIPLE CHOICE**

**Directions:** For Items 6-15, write the letter of the best response in the blank.

_____ 6. Which of the following is *not* a role of fat in the body?
A. Converts into muscles with exercise
B. Gives feeling of fullness or satiety
C. Provides insulation for your body
D. Transports fat-soluble vitamins

_____ 7. A popular salad that has a high fat content is
A. cottage cheese on peach half.
B. coleslaw
C. guacamole (avocado) salad
D. potato salad.

_____ 8. Which of the following has the highest caloric content per cup?
A. Brown sugar
B. Chocolate syrup
C. Vegetable shortening
D. Whole-wheat flour

_____ 9. Lou Ellen compared the labels of Brand X and Brand Y when shopping for an *unsaturated* shortening. She decided *not* to buy Brand Y because it contained
A. coconut oil.
B. corn oil.
C. peanut oil.
D. safflower oil.

_____ 10. Joe's father has a problem with cholesterol build-up and his doctor has advised him to eliminate foods that have a high cholesterol content from his diet. Which foods should Joe help him avoid?
A. Avocados, bacon, and french fries
B. Chicken, fish, skim milk
C. Liver, shellfish, red meats
D. Sugar, whole-grain breads, potatoes

_____ 11. Tom is planning a party and he wants to keep the refreshments as low in fat as possible. What kind of sandwiches should he serve?
A. Bologna
B. Ham
C. Roast beef
D. Turkey

_____ 12. Fat is needed by the body for the proper use of
A. calcium, phosphorus, and iron.
B. vitamins A, D, and C.
C. vitamins A, D, and calcium.
D. vitamins A, C, and iron.

_____ 13. Brenda's grandparents are coming for a visit. Her grandfather has athlerosclerosis and her grandmother is overweight. Which cooking method should be avoided during their visit?
A. Broiling
B. Poaching
C. Sauteeing
D. Steaming

_____ 14. Raoul has decided one way to cut down on fat in his diet is to eat low-fat cheese. Which cheeses may he eat?
A. American, Cheddar, Montery jack
B. Cottage, Mozzarella, Parmesan
C. Mozzarella, Muenster, Swiss
D. Swiss, Mozzarella, Cheddar

_____ 15. Cholesterol build-up does *not* result in
A. arteries becoming clogged.
B. the brain receiving less oxygen.
C. the heart working harder.
D. varicose veins.

**MATCHING**

**Directions:** For Items 16-20, match the foods with the types of fat by writing the correct letter in the blank.

| FOODS | TYPE OF FAT |
|---|---|
| _____ 16. Avocado half on lettuce | A. Saturated fat |
| _____ 17. Fried egg | B. Unsaturated fat |
| _____ 18. Meat loaf | |
| _____ 19. Cheese and crackers | |
| _____ 20. Sliced bananas | |

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**Directions:** For Items 21-25, match the definitions with the terms by writing the correct letter in the blank.

DEFINITIONS

_____ 21. A complex fat that aids in the body repair process

_____ 22. An animal source fat

_____ 23. Form in which the body stores fat

_____ 24. Form of fat when converted for energy use

_____ 25. Plant source fat

TERMS

A. Cholesterol

B. Fatty Acids

C. Fatty tissue

D. Saturated fat

E. Unsaturated fat

## Answer Key Teaching Aid 7

# WHAT DO YOU KNOW ABOUT FAT?

1. T
2. F
3. F
4. F
5. T
6. A
7. C
8. C
9. A
10. C
11. D
12. C
13. C
14. B
15. D
16. B
17. A
18. A
19. A
20. B
21. A
22. D
23. C
24. B
15. E

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## Answer Key Student Activity 1

# FAT FIND

| SATURATED FAT | SUBSTITUTION | UNSATURATED FAT |
|---|---|---|
| Sirloin steak | Fish, chicken | |
| Butter | Soft margarine, vegetable oil, corn oil | Vegetable oil, peanut oil |
| Bacon | Low-fat meat, lean ham | |
| Cheddar cheese | Low-fat cheeses (mozzarella, cottage cheese) | |
| Sour cream | Yogurt | |
| Whole milk | Low-fat or skim milk | |

## Answer Key Student Activity 2

# A LOOK AT THE "LIGHT" FOODS

1. The cheese products classified as "lighter" contain as many, or more, essential nutrients, such as protein and calcium, as are found in the natural or processed cheeses.

2. "Lighter" cheese products may be substituted for regular processed cheese in sandwiches, snacks, salads, and recipes (such as toppings casseroles or macaroni and cheese).

3. "Light" alternatives are available in such food categories as: syrups, meats (luncheon meats and hot dogs using low-fat chicken and turkey instead of beef), margarine spreads, salad dressings, snack dips, mayonnaise, and sour cream.

## Answer Key Student Activity 3

# TRIM OFF THE FAT

1. •Choose lean cuts of meats, such as chicken, turkey, and fish, which are lower in fat than beef and pork. Luncheon meats such as bologna contain high percentages of fat. Whole milk contains 3.5 percent butterfat. Gradually change from whole to 2-percent milk, then to 1-percent, and then to skim milk.

   •Substitute lowfat cheese, such as mozzarella, for hard cheeses, such as cheddar. Lowfat mozzarella contains 20 percent fat calories compared to 75 percent fat calories in cheddar.

   •Substitute buttermilk-based salad dressings or other home-prepared dressings for commercial salad dressings, which are typically high in calories.

   •Switch to fresh fruits and vegetables for snacks. Curb your munchies with unbuttered popcorn. Milk chocolate and peanut butter are high in fat and calories.

   •Develop a taste for stir-fried, broiled, steamed, or baked foods instead of fried.

2. Calculate the percentage of calories provided by fat using the following formula:
   (a) calories provided by fat = fat (grams) X 9 (calories per gram)
   (b) percent calories by fat = calories provided by fat ÷ total caloric value of the food item
   Compare the proportion of calories provided by fat to the total daily caloric intake.

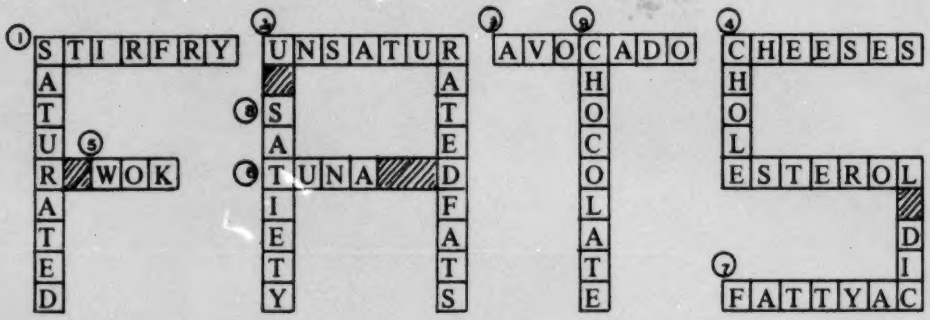
3. Skim or lowfat milk, lean meats, lowfat cheeses, fresh fruits and vegetables, breads and cereals, tuna (packed in water).

4. Low-calorie fats or fat substitutes are available for the following foods: syrups, luncheon meats, margarine spreads, salad dressings, snack dips, mayonnaise, sour cream, cheese, and canned fruits.

# Answer Key Student Activity 4

# FAT FACTS

**DIRECTIONS**
Fill in the puzzle using the appropriate words related to dietary fats. Some items will continue in another direction to complete the word.




**Across**
1. A common Chinese cooking technique that maximizes nutritive value and minimizes fat required in preparation.
2. Foods such as vegetable oil, peanut oils, and corn oils.
3. Green fruit high in fat content.
4. Milk products high in butterfat content.
5. Round-bottomed, metal pan with high sides.
6. Type of fish high in fat when packed in oil.
7. Form in which the body uses fats to provide energy.

**Down**
1. Fats contained primarily in animal source foods.
4. Complex fat present in all animal tissues.
8. Feeling of fullness after eating.
9. Type of candy which contains "hidden" fat.

## Dietary Guideline 4:

# EAT FOODS WITH ADEQUATE STARCH AND FIBER

**OBJECTIVES**
When students complete this lesson, they should be able to: Give examples of fiber-rich food sources. Explain the role of fiber in the diet, and major health benefits related to food fiber. Distinguish between myths and facts related to dietary fiber. Propose guidelines for including fiber in the daily diet. Prepare foods rich in dietary fiber.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Starched Fiber |
| Teaching Aid 2: | Fiber on the Menu |
| Teaching Aid 3: | What Do You Know About Starch and Fiber? |
| Student Activity 1: | What Do You Believe About Fiber? |
| Student Activity 2: | Find the Fiber |
| Student Activity 3: | Put Fiber On Your Menu |
| Media Resource 1: | Eat Well, Be Well:<br>Oatmeal Scones<br>Pasta Primavera<br>Scalloped Potato Casserole<br>Rice Con Queso<br>Irish Soda Bread |
| Media Resource 2: | NEWtrition 7 |
| Media Resource 3: | The Instant Energy, Sugar Coated Fast Food Nutrition Kit |

**KEY WORDS**
cellulose
complex carbohydrates
diverticular disease
fiber
gastrointestinal tract
roughage
starches

**INTRODUCTION**
Unscramble the letters printed on the chalkboard. The words are common foods. Find the secret word by unscrambling the circled letters. All of the unscrambled words relate to the secret word.

| Word Scramble | Answer Key | Secret Word |
|---|---|---|
| 1. N R (B) A | 1. Bran | FIBER |
| 2. U S T R I (F) | 2. Fruits | |
| 3. E L T (E) U C T | 3. Lettuce | |
| 4. L O R C O (I) C B | 4. Broccoli | |
| 5. O P C (R) N O P | 5. Popcorn | |



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Fiber is included in the American diet less frequently than in the past. List on the chalkboard other food sources of fiber from each of the five food groups in the Daily Food Guide.

**SUGGESTED ACTIVITIES**

- Formulate a definition of dietary fiber and discuss the role of fiber in the diet. Listen to a dietitian or physician explain the major health benefits related to food fiber. [NOTE TO TEACHER: Use Teaching Aid 1: Points to Ponder About Dietary Fiber to stimulate discussion.]
- Recall the foods you ate yesterday. Identify the fiber-rich foods you included in your diet. List changes you could make in your daily diet to increase your fiber intake. Why do you need to include dietary fiber daily?
- Brainstorm to identify any myths or facts you have heard about dietary fiber. Talk to your friends and family members to obtain fiber myths or fiber facts to add to your list. Identify the statements in Student Activity 1: What Do You Believe About Fiber? as true or false. Compare these statements with the fiber myths or facts you have heard.
- Identify the fiber-rich foods in Student Activity 2: Find the Fiber. List food sources of fiber and develop guidelines for putting fiber into your daily menus. Formulate these guidelines into an article for the school newspaper or a poster for your school cafeteria. [NOTE TO TEACHER: Refer to Teaching Aid 2: Fiber on the Menu for food sources of fiber.]
- Rewrite the menus provided in Student Activity 3: Put Fiber On Your Menu to include fiber-rich food sources. Fiber can be hidden in daily menus in a variety of ways. Use your creativity to add fiber-rich foods!
- Prepare fiber-rich foods in the foods laboratory. Experiment with adapting your favorite foods to increase fiber content. Try incorporating bran into muffins, pancakes, breads, and cookies. They'll achieve a nutty flavor and texture when bran cereal or whole bran is substituted for part of the flour. Try substituting whole-wheat flour for some of the white flour in your recipes. Nuts, dried fruits, and sesame seeds are other ways to add fiber to your favorite recipes.

Suggestions for fiber-rich foods to prepare in the foods laboratory are:

**Nutty Vegetable Loaf**

Wheat germ, unsweetened, to coat pan
1 cup carrots, chopped
1 cup celery, chopped
½ cup onion, chopped
½ cup green pepper, chopped
2 tablespoons butter or margarine
¼ cup flour
½ teaspoon salt
1/8 teaspoon pepper
¼ teaspoon garlic powder, if desired
1 ½ cups milk
1 cup natural Cheddar cheese, shredded
1 cup walnuts or pecans, chopped
¾ cup wheat germ, unsweetened
3 eggs, slightly beaten
onion sauce, if desired (recipe follows)

Preheat oven to 350° F. Grease 8" X 8" X 2" baking pan. Coat with wheat germ. Cook vegetables in fat until onion is tender. Stir in flour, salt, pepper, and garlic powder. Stir in milk. Cook and stir over moderate heat until thick. Stir in cheese, nuts, and ¾ cup wheat germ. Add eggs. Pour into baking pan. Bake about 40 minutes or until well browned and firm. Let stand a few minutes; cut into serving-size pieces. Serve with sauce.

Yield: 6 servings

**Onion Sauce for Loaf**

2 tablespoons butter or margarine
2 tablespoons onion, finely chopped
¼ cup flour
1 ½ cups broth from any cooked vegetables
2 teaspoons Worchestershire
few grains of pepper

Melt fat in small pan over moderate heat. Cook onion until lightly browned. Stir in flour. Remove from heat. Stir in rest of ingredients. Cook and stir until thickened. Thin with water if needed.

Yield: 1½ cups

**Spicy Bran Muffins**

1 cup whole bran cereal
1 cup milk
1 egg
2 tablespoons oil
¼ cup honey
1¼ cups whole-wheat flour, unsifted
2 teaspoons baking powder
¼ teaspoon baking soda
½ teaspoon salt
½ teaspoon cinnamon
½ teaspoon cloves
½ cup raisins

Preheat oven to 400° F. Grease muffin tins. Stir bran cereal and milk together in a bowl. Let stand a minute or two. Add egg, oil, and honey. Beat well. Stir remaining ingredients together until well-mixed. Add to liquid. Stir. Put into muffin tins. Bake about 20 to 25 minutes or until lightly browned.

Yield: 12 medium-size muffins

**Crunchy Snacks**

3 cups rolled oats, quick cooking
½ cup sesame seeds
1 cup unsweetened wheat germ
1 cup peanuts, corasely chopped
1 cup raisins
½ cup dates, chopped
3 tablespoons oil
1/3 cup honey
2 teaspoons vanilla

Preheat oven to 275° F. Mix rolled oats, sesame seeds, wheat germ, peanuts, raisins, and dates in large bowl. Mix oil, honey, and vanilla. Pour over rolled-oat mixture. Stir lightly until evenly mixed. Spread mixture on a 15" X 10" X 1" baking pan. Bake 1 hour, stirring every 15 minutes. Cool. Break up any large lumps. Store in an airtight container.

Yield: 15 servings, about ½ cup each



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## Teaching Aid 1

# POINTS TO PONDER ABOUT STARCH AND FIBER

•Complex carbohydrates occur when many simple sugars are linked together, in either straight or branched chains. The resulting substance is called a polysaccharide.

•Many nutrition scientists believe that Americans would be healthier if they ate less sugar and more of the complex carbohydrates instead. This belief is based on 1) evidence from research that a diet high in complex carbohydrates may reduce the risk of heart disease and that a diet high in refined sugar may contribute to heart disease, 2) the fact that foods having complex carbohydrates are likely to carry more of other important nutrients, particularly vitamins and minerals, plus fiber, while refined sugars have little nutritional value other than their energy value, 3) the recent finding that a complex carbohydrate diet is likely to be helpful to diabetics in reducing the thread of atheroschlerosis (the build up of fatty deposits in arteries) and hyperlipidemia (high levels of cholesterol and fat in the blood).

**Starch**

•Starch is a carbohydrate formed by plants. It is a complex carbohydrate that has over 300 simple sugars hooked together.

•Starch is stored by plants as an energy source. It is found in seeds such as wheat, rice, oats, corn, peas, and beans. It is found in tubers (underground stems) such as potatoes. It is also found in roots, such as yams and sweet potatoes.

•"Starchy foods" is the name often given to foods in the bread and cereal group. The solid material in breads and cereals is 70 to 80 percent starch and 7.5 to 19 percent protein. This food group is an inexpensive source of energy and proteins.

•Because of the common notion that "starchy foods" are high in calories, dieters frequently omit or cut back on foods in this group. This can be unwise as it can result in deficiencies of iron, niacin, and thiamin as well as carbohydrates. What dieters need to remember is that basic breads and cereals are not excessively high in calories. The extra calories come from adding butter, margarine, jelly, honey, syrup, cream, etc.

**Fiber**

•Fibers are another type of complex carbohydrate. Dietary fiber, often referred to as roughage, is plant material which is not digested by humans. Dietary fiber is found in the cells of all plant foods and is usually associated with the undigestible portion of cereals, fruits, and vegetables.

•Fiber absorbs water in the body and provides a feeling of fullness. High fiber, starchy foods are generally low in fat and calories for their bulk. Fiber fills you up and is a good choice for weight reduction diets.

•Research indicates that eating fibrous foods may prevent constipation and may aid in regulating the digestive process. Fiber adds bulk and absorbs moisture as it passes unchanged through the intestinal tract to be excreted as water. Research supports the use of fiber as a way to improve the digestive process and elimination of waste. As a result, fiber may help prevent chronic diseases of the large intestine, such as cancer of the colon or rectum. Bacteria may occur when waste products remain in the intestine for too long. Fiber is vital in keeping the waste moving. Adequate

intake of fiber-rich foods will also help you avoid diverticular diseases of the intestinal tract. Deverticular diseases result in the formation of pockets on the large intestine that may become inflamed or infected. Many nutrition researchers believe that Americans today may not be getting enough fiber. Out diets are high in fat, sugar, and refined cereals and low in fiberous fruits, vegetables, and whole grains.

• To put more fiber in your daily diet follow these guidelines:
Choose whole-grain breads and cereals rather than refined grains.
Eat fresh fruits and vegetables, including the outer peeling, when possible. Leafy, green, and root varieties of vegetables are especially high in fiber. Eat fruits and vegetables raw rather than peeled, cooked, pureed, or processed.
Use dry beans, peas, and other legumes for soup, casseroles, and dips.
Eat bran cereal, or add a few teaspoons of bran to your favorite breakfast cereal, fruit, yogurt, casseroles, or home-baked breads. Remember that the key is to change the kinds of food you eat and not simply to use bran as a fiber additive.
Add bran to muffins, cookies, breads, and pancakes. Bran flakes or whole bran can also be substitutes for part of the flour in a recipe. Bran can be included in meat loaves, stews, or breading for fish and chicken.
Use brown rice, cracked wheat, or bulgar wheat in place of white rice.
Eat sunflower seeds, pumpkin seeds, peanuts, soynuts, and other nuts.
Add millet or barley to soups; use these grains for casseroles in place of pasta or white rice.

• An increase in dietary fiber may cause temporary digestive problems for some people. Fiber may stimulate the formation of intestinal gas, especially when fiber intake is higher than normal. Dietary fiber may also blend with other nutrients, such as calcium, zinc and iron, and prevent the body's absorption of these nutrients. This is not a major problem in the American diet, which usually has an excess of protein and other nutrients.



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Teaching Aid 2

# FIBER ON THE MENU

Bran Cereal or Muffins

Dry Peas and Beans

Whole-Wheat Breads

Nuts

Brown Rice

Fresh Fruits - Dried Fruits

Whole Rolled Oats

Unprocessed Bran Flakes

Fresh Vegetables

## Teaching Aid 3

# WHAT DO YOU KNOW ABOUT STARCH AND FIBER?

**TRUE AND FALSE**

**Directions:** For Items 1-8, circle the T if the statement is True. Circle F if the statement is False.

T F 1. Complex carbohydrates occur when many simple sugars are linked together.

T F 2. Starch is a complex carbohydrate formed by plants.

T F 3. Dieters should avoid starchy foods because they are high in calories.

T F 4. Dietary fiber is the undigestible portion of cereals, fruits, and vegetables.

T F 5. Undigested fiber can aid the body in the absorption of nutrients, such as calcium and iron.

T F 6. Roughage is a common term used to refer to cellulose and other dietary fibers.

T F 7. Foods with high-fiber content fill you up and are good choices for weight reduction diets.

T F 8. Diverticular diseases result when an excess of fiber-rich foods irritates the lining of the large intestine.

**MULTIPLE CHOICE**

**Directions:** For Items 9-15, write the letter of the best response in the blank.

_____ 9. Which of the following is *not* a source of starch in the diet?
A. Grain
B. Legumes
C. Tubers and roots
D. Meat

_____ 10. Which food group is often given the name "Starchy food"?
A. Bread and Cereal Group
B. Milk and Milk Products Group
C. Vegetable and Fruit Group
D. Meat and Legumes Group

_____ 11. Janie's doctor told her that she needs to eat more fiber. Which of the following will *not* add significant fiber to her diet?
A. Enriched white bread and refined rice
B. Leafy green and root vegetables
C. Skins and peelings of vegetables and fruits
D. Whole-grain breads and cereals

_____ 12. The most important role of fiber in the diet is to
A. aid in regulation of body temperature.
B. aid in digestion and the elimination of solid waste.
C. form intestinal gases.
D. provide a feeling of satiety and fullness.

_____ 13. Diverticular disease is most often diagnosed as
A. bacterial growth in the digestive system.
B. inflammation or infection in the large intestine.
C. nonabsorption of some nutrients.
D. stomach cramps and intestinal gas.

_____ 14. Fiber is utilized most in which section of the digestive system?
A. Large intestine
B. Liver
C. Small intestine
D. Stomach

_____ 15. Complex carbohydrates are generally
A. high in calories and high in fat.
B. high in calories and low in fat.
C. low in calories and high in fat.
D. low in calories and low in fat.

**MATCHING**

**Directions**: For Items 16-20, match the foods with the quality of each food's fiber content by writing the correct letter in the blank. The fiber qualities may be used more than once.

| FOODS | QUALITIES OF FIBER |
|---|---|
| _____ 16. Beef jerky | A. Excellent |
| _____ 17. Bran muffins | B. Good |
| _____ 18. Carrot sticks | C. Poor |
| _____ 19. Cottage cheese | |
| _____ 20. Green beans | |

## Answer Key Teaching Aid 3

# WHAT DO YOU KNOW ABOUT STARCH AND FIBER?

1. T
2. T
3. F
4. T
5. F
6. T
7. T
8. F
9. D
10. A
11. A
12. B
13. B
14. A
15. D
16. C
17. A
18. A
19. C
20. B



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## Answer Key Student Activity 1

# WHAT DO YOU BELIEVE ABOUT STARCH AND FIBER?

1. T
2. F
3. T
4. T
5. T
6. F
7. T
8. T
9. T
10. F

## Answer Key Student Activity 2

# FIND THE FIBER

1. Bran flakes
2. Figs
3. Banana
4. Apple
5. Raisins
6. Celery
7. Brown rice
8. Apricots
9. Whole-grain bread
10. Dried fruit
11. Carrots
12. Potatoes
13. Dates
14. Sesame seeds

## Answer Key Student Activity 3

# PUT FIBER ON YOUR MENU

**Morning**
Substitute bran flakes for puffed rice cereal and top with a dried fruit such as raisins. Use whole-grain bread for toast.

**Noon**
Use whole-grain bread for sandwich; substitute carrot or celery sticks for potato chips. Replace the fruit cocktail with fresh fruit (like an apple or pear) eaten with the peeling. Add rolled oats, bran, nuts, and/or raisins to the sugar cookie.

**Night**
Use brown rice. Replace green beans with a tossed green salad. Use a whole-grain roll. Top frozen yogurt with a crunchy natural cereal for dessert.

**Snack**
Snack on popcorn, whole-grain crackers with peanut butter, crunchy granola, fresh fruits and vegetables. Eliminate the soft drink.

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## Dietary Guideline 5:

# AVOID TOO MUCH SUGAR

**OBJECTIVES**

When students complete this lesson, they should be able to: Describe the functions of carbohydrates. Give examples fo foods high in dietary sugar content. Associate sugar intake with health problems such as dental caries, obesity, heart disease, and diabetes. Analyze food labels to determine sugar content of food products. Modify recipes to reduce the sugar content of finished products. Plan a daily menu containing moderate levels of sugar.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Carbohydrate Breakdown |
| Teaching Aid 2: | Points to Ponder About Sugar |
| Teaching Aid 3: | Sugar and Disease |
| Teachind Aid 4: | Cut Back on Sugar |
| Teaching Aid 5: | What's On the Label? |
| Teaching Aid 6: | You Won't Miss the Sugar |
| Teaching Aid 7: | What Do You Know About Sugar |
| Student Activity 1: | Menu Modification |
| Student Activity 2: | Track Down the Culprit: Sugar |
| Student Activity 3: | How Sweet Does Your Day Begin? |
| Student Activity 4: | Sugar Search |
| Media Resource 1: | NEWtrition 7 |
| Media Resource 2: | Eat Well, Be Well:<br>Crunchy Apple Cobbler<br>Hot Fruit Medley<br>New French Toast<br>Lemon Bavarian Cream<br>Strawberry Yogurt Pops |
| Media Resource 2: | The Instant Energy, Sugar Coated, Fast Food Nutrition Kit |

**KEY WORDS**

cavities
carbohydrate
complex carbohydrate
dental caries
diabetes
empty calories
fructose
glucose
hidden sugar
hypoglycemia
insulin
lactose
maltose
simple sugar
starch
sucrose
sugar



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• Invite a physician, dentist, or dietitian to discuss the role of sugar in contributing to health problems such as coronary disease, obesity, and tooth decay. Following the panel discussion, divide into buzz groups to research the following questions:

What is the relationship between sugar and tooth decay?

Between sugar and obesity?

Between sugar and coronary heart disease?

Between sugar and hypoglycemia?

Investigate the theories and causes of these nutrition-related diseases, and report your findings to the class. [NOTE TO TEACHER: Refer to Teaching Aid 3: Sugar and Disease for background information.]

• Brainstorm to identify food items with high sugar content. Recall the food you ate yesterday. How many of the high-sugar foods were included in your diet? Discuss ways high-sugar food items could be substituted with items containing moderate or minimal levels of sugar. Make sure that these substitutions are acceptable and enjoyable. [NOTE TO TEACHER: Refer to Teaching Aid 4: Cut Back on Sugar for guidelines for reducing sugar intake.] Share your information with classmates. Use class suggestions to write an article for the school or local newspaper or develop a poster or bulletin board for the classroom or school cafeteria.

• Examine the menu in Student Activity 1: Menu Modification and identify the foods high in sugar content. Replace the high-sugar foods with foods containing moderate or minimal levels of sugar. Plan an enjoyable daily menu which avoids high-sugar foods.

• Food labels provide a clue to the sugar content in food products. "Sugar" is not the only word to look for on food labels. Give examples of other words which provide a clue that sweeteners and sugars are present in products. [NOTE TO TEACHER: Refer to Teaching Aid 5: What's On the Label?] Examine food labels at home or in the supermarket and identify the sugars listed on the sheet or record your findings in Student Activity 2: Track Down the Culprit: Sugar.

• Analyze the labels of ready-to-eat breakfast cereals to determine the sugar content. Using Student Activity 3: How Sweet Does Your Day Begin? list the names of popular cereals that contain a high percentage of sugar. Compare your favorite breakfast cereal with other high-sugar cereals on the list.

• Solve the crossword puzzle Student Activity 4: Sugar Search to review the role of sugar. Create your own crossword puzzle or word scramble using the key words associated with sugar. Work in groups to develop crossword puzzles and exchange the puzzles with other students. Display the completed puzzles in the classroom as a review of the key words.

• Participate in an experimental foods laboratory to modify your favorite recipes to reduce the sugar content. Suggestions for reducing sugar content include:

Reduce sugar by one-third or more in common sweets, such as cookies, pies, or cakes.

Include nutritious ingredients such as dried fruits, oatmeal, bran, or nuts instead of chocolate chips or coconut, which have a relatively higher sugar content.

Prepare dessert quick breads that contain relatively little sugar but do contain nutritious ingredients, such as zucchini, cranberries, carrots, or apples.

[NOTE TO TEACHER: Refer to Teaching Aid 6: You Won't Miss the Sugar for suggested food laboratory preparations.]



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## INTRODUCTION

Sugar intake is increasing in the American diet. An estimated 128 pounds of sugar is consumed each year by the average American. That equals about one-third of a pound of sugar or 36 teaspoons per day! Many of use may think we don't eat sweets, but sugar is often hidden in processed foods. [NOTE TO TEACHER: Display empty containers or pictures of the following foods and have enough sugar cubes available for this activity.]

| FOOD | PORTION SIZE | SUGAR CUBES[1] |
|---|---|---|
| Cola | 12 ounces | 18 (9 teaspoons) |
| Jelly | 1 tablespoon | 6 (3 teaspoons) |
| Milk chocolate bar | 1 ounce | 14 (7 teaspoons) |
| Ice cream | ½ cup | 12 (6 teaspoons) |
| Doughnut (plain) | 1 | 8 (4 teaspoons) |
| Fruit cocktail | ½ cup | 10 (5 teaspoons) |
| Raisins | ¼ cup | 8 (4 teaspoons) |
| Orange juice | 4 ounces | 5 (2 ½ teaspoons) |
| Chocolate milk | 8 ounces | 12 (6 teaspoons) |

List the foods in the display and guess the number of sugar cubes in one serving of that food. One sugar cube equals one-half teaspoon of sugar. After students have written down their guesses, place the correct number of sugar cubes by each item. Ask the following questions: Did your estimated amounts and the actual amounts vary? Which foods surprised you with the amount of hidden sugar? What are other processed foods that contain hidden sugar?]

## SUGGESTED ACTIVITIES

- Discuss the breakdown of carbohydrates in the body. Illustrate the digestive process of carbohydrates on a poster or bulletin board. Give examples of foods high in carbohydrates which are broken down into sugars, starches, and fiber through digestion [NOTE TO TEACHER: Refer to Teaching Aid 1: Carbohydrate Breakdown to illustrate the digestive process.]
- Research and report on the role of insulin in the body. Include answers to the following questions:

  Why is insulin produced in your body?
  How does insulin regulate blood sugar?
  What is the predominant sugar in the blood?
  What occurs when there is not enough insulin in the body?
  What is diabetes?
  What is the relationship between diabetes and insulin?

  Report your findings. Create posters to explain the role of insulin in the body. Display the posters in the classroom or cafeteria. [NOTE TO TEACHER: Refer to Teaching Aid 2: Points to Ponder About Sugar.]
- Compare the various forms of sugar available for consumption: Refined sugar, brown sugar, confectioners' sugar, honey, molasses, and fructose. Examine the labels of the different forms as well as the actual product. Answer the following questions:

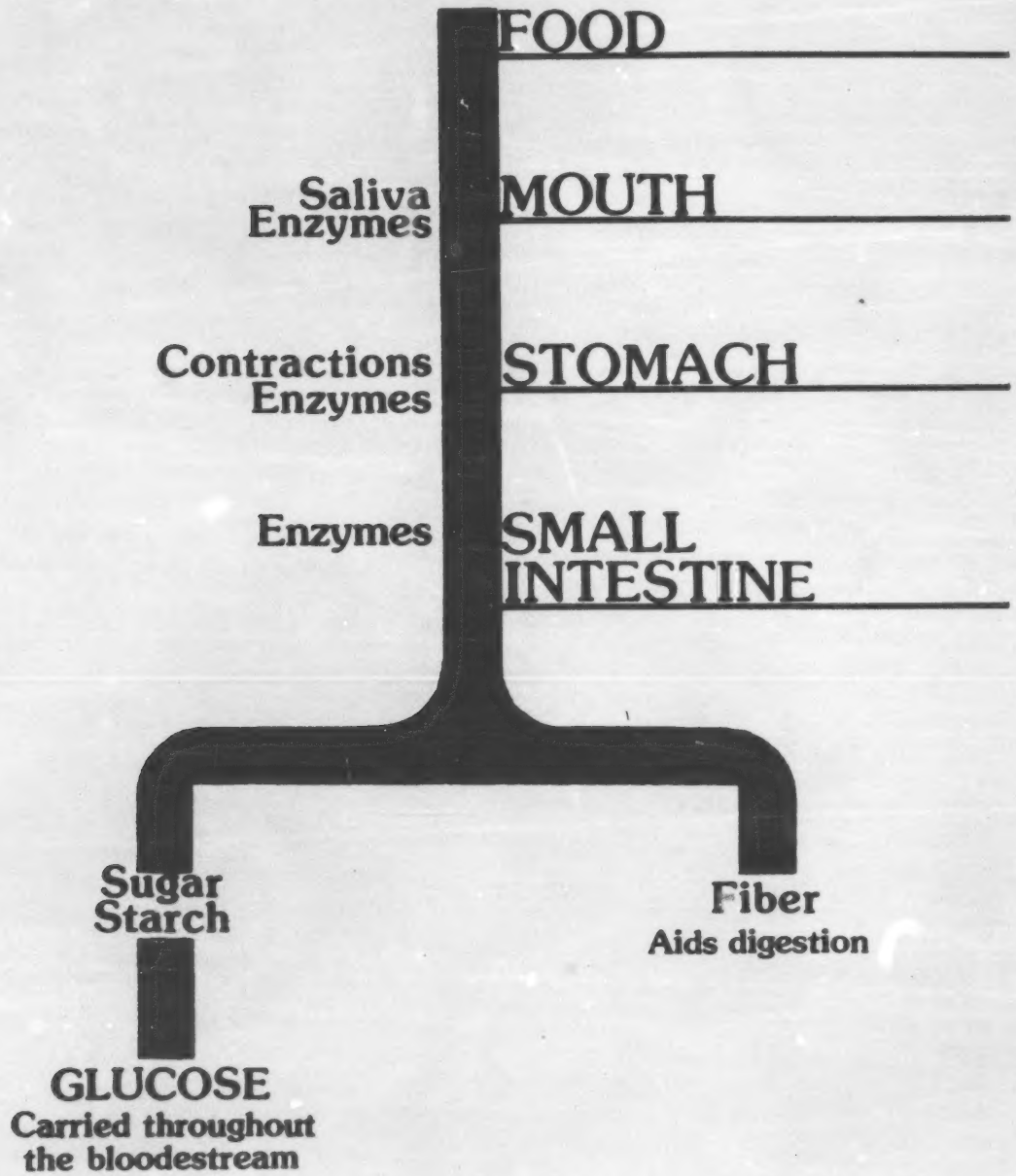
  What are the differences in the textures of the various forms?
  What are the relative advantages and disadvantages of each?
  What nutritive contributions does sugar provide?
  What are the differences in sweetening concentrations?
  What are common uses of the various forms of sugar?

  [NOTE TO TEACHER: Refer to Teaching Aid 2: Points to Ponder About Sugar.]

[1]J. Brody. Jane Brody's Nutrition Book. (New York: W. W. Norton, 1981), pp. 139-140.

Teaching Aid 1

# CARBOHYDRATE BREAKDOWN



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## Teaching Aid 2

# POINTS TO PONDER ABOUT SUGAR

•Carbohydrates are nutrients that supply energy. Your body breaks down carbohydrates into sugars, starches, and fiber. The fiber is used to aid the digestive processes; sugar and starches are eventually broken down into the simple sugar, glucose. Glucose is the energy source for your brain and nervous system. Often referred to as blood sugar, glucose is transported throughout the body in the bloodstream.

•Insulin is the hormone which helps to regulate the glucose level in the blood by accelerating the conversion of blood glucose to glycogen. Glycogen is the stored form of glucose in the liver and muscles which is used as a reserve of energy. After you eat a meal or snack of foods high in sugar, the body rapidly converts the sugar to glucose. As a result, the glucose level in the blood rises. Insulin is released to reduce the overload of glucose. Low blood sugar results when insulin causes more glucose to be converted to glycogen than is necessary. Fatigue, increase in appetite, and illness may result from a drop in the blood sugar level.

•Diabetes is a disease where the pancreas fails to produce the insulin needed to regulate blood sugar normally. Concentrated amounts of sugar cause the blood sugar level to rise, stimulating the pancreas to produce insulin. The hormone insulin "delivers" the excess glucose to body cells where it is either stored or used for energy. Diabetics do not have the insulin needed to regulate their blood sugar level. As a result, consumption of sweets is restricted in the diabetic diet. Starchy foods are used as the source of carbohydrates since these foods do not place such great demands on the body's insulin system.

•If you eat a variety of foods from the food groups in the Daily Food Guide, your body's blood sugar remains regulated. Complex carbohydrates, such as fruits, vegetables, and whole grains, are important to include in your diet since they supply your body with energy as well as many nutrients. Thus, you are receiving energy and additional nutrients in the same serving of food! Refined sugar, such as that found in candy, cola, cakes, and cookies, supplies the body primarily with simple sugars without providing vitamins, minerals, and fiber.

•Nutritionists suggest that the average American consumes many simple sugar carbohydrates instead of complex carbohydrates. Carbohydrates supply several sugars which are broken down to glucose during the digestive process:
sucrose - white refined table sugar, brown sugar, confectioners' sugar
fructose - The sweetest of the most commonly used sweeteners is found in fruits. Fructose is a more concentrated sweetener, and a smaller amount of fructose will provide a sweeter taste than larger amounts of other sugars. Fructose is thus used as the sweetener in many products advertised as "lower in calories."
maltose - malt sugar, found in breads and cereals
lactose - milk sugar, found in milk and milk products
glucose - blood sugar, the main energy source for the brain and nervous system

•Brown sugar is simply colored sucrose. It contains empty calories just like refined white sugar and provides no nutrients. Honey contains more fructose and therefore provides a more concentrated source of sweetener, up to 40 percent more than the same amount of sucrose. The sticky texture of honey readily adheres to the teeth causing tooth decay more readily than sucrose. Molasses

is the liquid that remains after sucrose crystals are removed. Molasses contains additional nutrients, such as calcium, iron, potassium, and the B vitamins. The amounts vary with the darker molasses containing more nutrients. Blackstrap molasses, very dark in color, contains the highest amount of additional nutrients. Sugar is sugar regardless of its form. The primary contribution of any sugar to the diet is calories–four calories per gram.

• Honey has become a fad "health-food" sugar. Actually, honey's sugar is no "healthier" than any other form of sugar. One tablespoon of honey equals 65 calories. One tablespoon of granulated sugar equals 40 calories.



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## Teaching Aid 3

# SUGAR AND DISEASE

**Dental Caries**
One primary health hazard of sugar is its contribution to tooth decay. In the relationship between sugar and tooth decay you must consider the quantity of sugar consumed, and how and when the sugar is consumed. High-sugar foods eaten with meals are less damaging to teeth than those eaten between meals. Sugar-laden foods that stick on teeth, such as jelly beans, raisins, or chewy cookies, are harder to remove by brushing than foods such as ice cream and puddings that can be easily rinsed from the mouth. The key to keeping dental caries under control is the use of daily dental hygiene using dental floss and correct brushing techniques.

Tooth decay results from bacteria in the mouth breaking down sugar, resulting in an acid that corrodes the protective enamel coating on teeth. Research reveals that the prevalence of tooth decay correlates highly with the amount of sugar consumed. The following guidelines can help prevent dental caries:
Eat sweets with meals instead of between meals.
Brush and floss daily to remove sugar which produces a decaying acid on tooth enamel.
Rinse your mouth with water when it is not possible to brush.

**Hypoglycemia**
Hypoglycemia is a blood glucose disorder that causes the body to overreact to the rise in blood sugar level and produce too much insulin. As a result, the blood glucose level drops and symptions such as shakiness, weakness, fainting, headaches, and fatigue occur. Although sugar is not believed to be a cause of hypoglycemia, the symptoms can often be avoided by dietary habits that promote the maintenance of a relatively constant blood glucose level.

**Heart Disease**
Many claim that a high-sugar diet promotes clogged arteries and heart disease. However, most heart-disease experts believe that fats and cholesterol are a greater concern in heart disease. The frequency of heart disease and atherosclerosis may be increased by obesity and diabetes. Neither of these two diseases is related to sugar intake directly. Thus excess caloric intake may contribute to the incidence of heart disease and atherosclerosis, but these diseases are not directly caused by dietary sugar intake.

**Obesity**
Overweight results from eating more calories than the body uses up as energy. Excess calories are stored as body fat. Foods high in sugar content are a concentrated source of calories. Thus, a lot of calories tend to exist in a small quantity of high-sugar foods. By eating high-sugar foods, there is a tendency to overconsume calories. The overconsumption of calories may result in obesity.


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## Teaching Aid 4

# CUT BACK ON SUGAR

- Read labels on the processed foods you purchase. The ingredients are listed in order with the largest quantity first. If sugar or some other sweetener is listed among the first three ingredients – BEWARE!

- Cut down on soft drink consumption. By eliminating soft drinks from your diet, an estimated sugar reduction of 50 percent would result! Try instead a bubbling club soda or mineral water. Both are sugar-free with no artificial sweeteners.

- Gradually reduce the amount of sugar you use to flavor items such as tea, fruits, cereals, etc. You will find you won't miss the extra calories.

- Substitute sweet spices and herbs, such as nutmeg, ginger, basil, or mace, for sugar when flavoring foods. Heating grapefruit, tomatoes, bananas, or other fruits and vegetables makes them taste sweeter since the natural sugar is caramelized. Sprinkle a small amount of shredded coconut on fresh fruit to enhance the naturally sweet flavor.

- Avoid using sweets to reward yourself. Treat yourself instead to a movie, concert, interesting book, a walk in the park, or time for your favorite hobby. Think how much better you will feel.

- Substitute nutritious snacks for sweet snacks or candy. Keep a supply of fresh fruits and vegetables to munch on. Curb your nibbles with unbuttered popcorn instead of jelly beans.

- Modify or replace your sweet dessert choices. Try cake without frosting. Change from fruited gelatin to canned fruit in natural juice, or better still, eat fresh fruit.

## Teaching Aid 5

# WHAT'S ON THE LABEL?

**WATCH OUT FOR THESE WORDS:**

sucrose

glucose

dextrose

fructose

maltose

corn syrups

corn sweeteners

natural sweeteners

molasses

honey

lactose

**REMEMBER**
Ingredients are listed in descending order with the ingredient used in the largest amount first. If sugar is among the top three ingredients – BEWARE!



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## Teaching Aid 6

# YOU WON'T MISS THE SUGAR

Try the following sweet instead of apple pie. A real treat without the sweet!

**Nutty Apple Bread**

1 cup whole-wheat flour
1 cup white flour
2 teaspoons baking powder
¼ teaspoon salt
6 tablespoons margarine
½ cup sugar
2 eggs, beaten
1 large tart apple, peeled and coarsely shredded (1 cup)
1 cup chopped nuts
½ cup (2 ounces) Cheddar cheese,
¼ cup skim milk
½ cup raisins

Preheat oven to 375° F. Combine the flours, baking powder, and salt in small bowl. Set aside. In large bowl cream the margarine and sugar. Add beaten eggs and continue beating with mixer until fluffy. Stir in apple, ¾ cup nuts, and cheese. Add half the flour mixture, mixing well. Stir in the milk and the remaining flour mixture. Add raisins. Pour in greased 9" X 5" X 3" loaf pan or two 7" X 3" X 2" pans. Sprinkle remaining nuts on top. Bake for 35 to 40 minutes or until toothpick inserted in center of loaf comes out clean. Cool on rack and remove from pan.

Yield: One 9" X 5" X 3" loaf or two 7" X 3" X 2" loaves

NOTE: Chopped dates, prunes, or other dried fruit may be substituted for raisins.

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## Teaching Aid 7

# WHAT DO YOU KNOW ABOUT SUGAR?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle the T if the statement is True. Circle F if the statement is False.

T F 1. According to experts, the average American consumes an average of about one-third pound of sugar per day.

T F 2. Dental caries (cavities) are caused by an acid which corrodes tooth enamel.

T F 3. If sugar is not listed as one of the first three ingredients on the label, the food does not contain "hidden" sugar.

T F 4. High-sugar diets cause heart disease and atherosclerosis.

T F 5. Diabetes occurs when the body's supply of insulin cannot regulate the amount of glucose normally in the blood.

**MULTIPLE CHOICE**

**Directions:** For Items 6-15, write the letter for the best response in the blank.

_____ 6. Simple sugars supply the body with
A. energy.
B. fiber.
C. minerals.
D. vitamins.

_____ 7. Ruth's mother sent her to the store to buy some sucrose. Which of the following forms contains *only* sucrose?
A. Brown sugar
B. Confectioners' sugar
C. Honey
D. Molasses

_____ 8. Mario wants something sweet to eat, but doesn't want a lot of calories. He reads the labels of two snack foods to see if a concentrated natural sweetener is in either of them. Which sweetener is he looking for?
A. Fructose
B. Lactose
C. Maltose
D. Sucrose

_____ 9. Juanita has hypoglycemia. Her doctor told her that it occurs when the body
A. blood sugar level gets too low.
B. does not produce enough insulin.
C. does not secrete enough glucose.
D. produces too much insulin.



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_____ 10. Bob has been in the habit of drinking at least two soft drinks every day. What can he drink in order to cut his sugar intake the most?
A. Apple juice
B. Club soda
C. Orange drink
D. Root beer

_____ 11. Mike just had two dental caries filled. His dentist gave him three rules to follow to prevent future cavities. Which of the following was *not* one of those rules?
A. Do not eat sweets.
B. Eat sweets with meals instead of between meals.
C. Brush and floss teeth carefully every day.
D. Rinse your mouth with water when you can't brush.

_____ 12. When digested, breads and cereals are broken down into
A. sugar, glucose, fiber.
B. sugar, insulin, glucose.
C. sugar, starch, enzymes.
D. sugar, starch, fiber.

_____ 13. What is the role of insulin in the digestion of foods?
A. Converts glycogen to glucose
B. Regulates the glucose level in the blood
C. Stimulates the pancreas to create blood glucose
D. Turns starchy foods in glycogen

_____ 14. Helen and Andrea are arguing over which of the following is the most nutritious sweetener. Which one would you choose?
A. Brown sugar
B. Granulated sugar
C. Honey
D. Molasses

_____ 15. Complex carbohydrates include such foods as
A. apples, broccoli, bran muffins.
B. carrots, whole-wheat bread, Cheddar cheese.
C. potatoes, rice, roast beef.
D. pork, fish, poultry.

**MATCHING**

**Directions:** For Items 16-20, match the foods with the types of natural sugar they contain by writing the correct letter in the blank. Some of the types of sugar may be used more than once; others may not be used at all.

| FOODS | TYPES OF SUGAR |
|---|---|
| _____ 16. Apricot | A. Fructose |
| _____ 17. Cheese spread | B. Glucose |
| _____ 18. Corn bread | C. Lactose |
| _____ 19. Peanut brittle | D. Maltose |
| _____ 20. Wheat crackers | E. Sucrose |

## Answer Key Teaching Aid 7

# WHAT DO YOU KNOW ABOUT SUGAR?

1. T
2. T
3. F
4. F
5. T
6. A
7. B
8. A
9. D
10. B
11. A
12. D
13. B
14. D
15. A
16. A
17. C
18. D
19. E
20. D

## Answer Key Student Activity 1

# MENU MODIFICATION

### Morning

Fresh Peaches or Peaches in Natural Juice
Low-sugar Cereal or Oatmeal
Whole-wheat Toast
Milk

### Midday

Meat and Cheese Sandwich on Whole-wheat Bread
Fresh Vegetables
Angel Food Cake or Fresh Fruit
Milk

### Evening

Baked Ham
Steamed Broccoli
Baked Potato
Tossed Salad
Hard Roll
Fresh Fruit

### Snack

Unbuttered Popcorn
Fruit Juice

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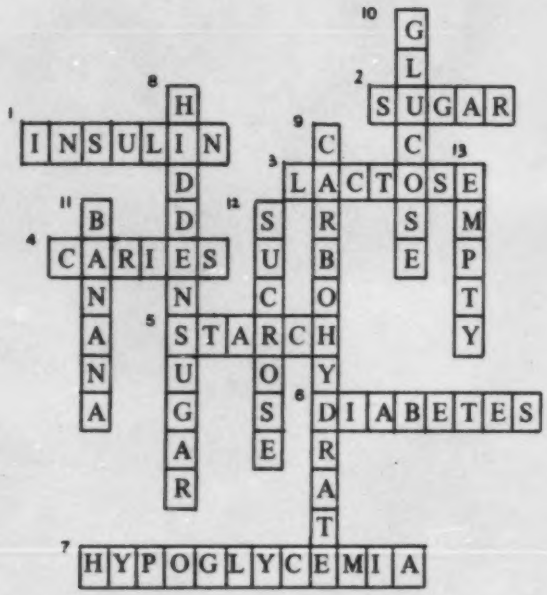
# Answer Key Student Activity 4

# SUGAR SEARCH

**DIRECTIONS:**
Fill in the puzzle using the appropriate words.




**Across**

1. Hormone that regulates the blood glucose level.
2. Popular food additive eaten in the quantity of about 128 pounds per year by the average American.
3. Milk sugar.
4. Damage to teeth related to sugar in the diet.
5. Complex carbohydrates such as breads, pasta, and rice.
6. Failure of the pancreas to produce adequate amounts of insulin.
7. Overproduction of insulin in response to sugar intake.

**Down**

8. Contained in many processed foods.
9. Nutrient that supplies energy.
10. Blood sugar.
11. Yellow fruit that is a complex carbohydrate.
12. Refined table sugar.
13. Calories that provide few or no nutrients.



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## Dietary Guideline 6:

# AVOID TOO MUCH SODIUM

**OBJECTIVES**
When students complete this lesson, they should be able to: Identify foods high in sodium. Explain the role of sodium in the human body. Explain the health hazards associated with excess sodium intake. Analyze food labels to determine sodium content. Determine ways to reduce sodium in daily food intake. Prepare foods using herbs and spices as seasonings.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Points to Ponder About Sodium |
| Teaching Aid 2: | Tips for Reducing Sodium Intake |
| Teaching Aid 3: | Points to Ponder About Herbs and Spices |
| Teaching Aid 4: | Flavor with Herbs and Spices |
| Teaching Aid 5: | What Do You Know About Sodium? |
| Student Activity 1: | Where is the Sodium? |
| Student Activity 2: | What's On the Label? |
| Student Activity 3: | What About Sodium? |
| Student Activity 4: | Sodium Search |
| Student Activity 5: | Flavor Fun |
| Media Resource 1: | NEWtrition 7 |
| Media Resource 2: | Eat Well, Be Well: Crispy Baked Chicken Using Herbs and Spices Turkey Curry |
| Media Resource 3: | The Instant Energy, Sugar Coated, Fast Food Nutrition Kit |
| Media Resource 4: | Salt-Sodium in Daily Diets |

**KEY WORDS**

| | | |
|---|---|---|
| blood pressure | hypertension | sodium chloride |
| electrolyte | processed food | |

**INTRODUCTION**
Salt or sodium chloride is the main source of sodium in the American diet. Salt is about 40 percent sodium. Sodium occurs naturally in many foods but is also hidden in many other foods. For example, you can probably guess that potato chips contribute sodium to the diet. But two slices of white bread contain more sodium than a 1-oz. bag of potato chips! Potato chips (1 oz. = 190 mg), white bread (2 slices = 255 mg). From the foods illustrated in Student Activity 1: Where is the Sodium? identify the six foods containing the highest sodium content. Are you surprised? [NOTE TO TEACHER: Most nutritionists believe 1.1-3.3 grams of sodium per day is adequate. Have students figure how many milligrams this is.]

**SUGGESTED ACTIVITIES**

- Research the history of salt and why its value has increased through the years. The following information may be included:

  Wild animals and early man hunted salt licks, places where salt occurred on the earth's surface.

  The value of salt was enhanced by its usefulness in the preservation of foods, especially in meats and canning.

  The word "salary" comes from the use of an allowance of salt as payment for services.
- Discuss the roll of sodium in the diet and the health hazards which may result from excess sodium intake. [NOTE TO TEACHER: Refer to Teaching Aid 1: Points to Ponder About Sodium to stimulate class discussion.]
- Interview a physician or dietitian to obtain information on the health hazards of excess sodium intake. Include in your interview questions concerning the role of sodium in the body, the relation of sodium to hypertension (high blood pressure), and recommended daily sodium intake.
- Brainstorm to identify foods high in sodium. List ways to reduce sodium intake in the diet. Your suggestions could be incorporated into newspaper articles, posters, or flyers and distributed to follow students. [NOTE TO TEACHER: Refer to Teaching Aid 2: Tips for Reducing Sodium Intake.]
- Analyze the labels on the foods suggested in the Student Activity 2: What's on the Label? List hidden words which indicate a high sodium content. Foods which do not taste salty or contain table salt may contain lots of sodium. Many food products, especially processed foods, contain additional salt and other sodium compounds.
- Complete the word search in Student Activity 3: What About Sodium? to review the concepts discussed in class. [NOTE TO TEACHER: Refer to Student Activity 3: What About Sodium-Answer Key.]
- Survey classmates to learn what they know about sodium. Use Student Activity 4: Sodium Search to conduct your own servey. Based on the results of your study, conduct a sodium campaign focusing on the reduction of sodium in the daily diet. Suggestions include poster contests, school assembly programs, or school newspaper articles.
- Flavor foods with herbs and spices instead of salt to cut down on sodium in your diet. Unscramble the words in Student Activity 5: Flavor Fun. Name a food which can be flavored by using each identified herb or spice. [NOTE TO TEACHER: Answers to the word scramble are found in Student Activity 5: Flavor Fun-Answer Key.]
- Prepare foods flavored with herbs and spices in the foods laboratory. Experiment with new herbs or spices with which you are not familiar. Substitute herbs and spices for salt in recipes. [NOTE TO TEACHER: Use Teaching Aid 3: Points to Ponder About Herbs and Spices and Teaching Aid 4: Flavor with Herbs and Spices to guide laboratory planning.] Suggestions for laboratory experiences include:

**Cheese Herb Dip**

1 cup lowfat cottage cheese, creamed
2 tablespoons lemon juice
2 tablespoons lowfat milk
2 tablespoons mayonnaise-type salad dressing
2 tablespoons green onions, chopped
¼ cup parsley, chopped
½ teaspoon tarragon leaves
½ teaspoon dill
¼ teaspoon celery seed
dash pepper
paprika

Mix ingredients in blender, scraping sides of blender, and reblending as needed to obtain a creamy texture. Pour into serving dish and sprinkle with paprika. Serve as a dip with fresh vegetables.

Yield: 1 1/3 cups
Calories per tablespoon: About 20

## Teaching Aid 1

# POINTS TO PONDER ABOUT SODIUM

• Sodium is classified as an electrolyte. Electrolytes help in circulating fluid around the body and into and out of cells. Sodium functions in the body to regulate water balance, absorb minerals, and promote the maintenance of nerves and the lymph system.

• Research indicates that the amount of fat, sugar, and salt in the diet may have health implications. Excess sodium in the diet is believed to be a factor that contributes to hypertension or high blood pressure, especially among individuals who have a family history of high blood pressure. Some people have no health problems related to sodium intake. But approximately 20 percent of American adults who develop high blood pressure are affected by sodium intake. Excess sodium also can cause your body to retain water. Swelling can occur in legs, feet, or ankles, and weight gain results. By limiting sodium intake, some people may lose from two to five pounds very quickly.

• The estimated safe intake for sodium is 2.8 to 8.4 grams (2800 to 8400 mg) of sodium daily for adults. (One level teaspoon of salt weighs about 4 grams.) Current daily dietary intake of sodium in the United States has been estimated at 8-12 g (2-3 teaspoons.)

• Sodium occurs naturally in some foods. Foods such as spinach, celery, milk, and other dairy products contain sodium. A large percentage of sodium intake comes from salty foods, especially processed foods. Thus, hiding the salt shaker and reducing obviously salty foods is only a start! Foods containing hidden sodium make a major sodium contribution to the American diet. Approximately 55 percent of the foods we buy are processed and more than half of our meals are eaten outside the home. These are all major sources of hidden salt.

## Teaching Aid 2

# TIPS FOR REDUCING SODIUM INTAKE

- Cut down on the use of table salt. Seasoned salts and sea salt contain sodium just like table salt. Develop a taste for herbs, spices, pepper, and lemon for new, interesting flavors.

- Reduce intake of salty or smoked meats and fish. These meats include bologna, corned beef, frankfurters, ham, luncheon meats, sausage, and salt pork. Salty or smoked fish include sardines, anchovies, salted and dried cod, and smoked salmon.

- Cut down on intake of foods preserved with large amounts of salt, such as pickles, olives, and sauerkraut.

- Substitute fresh fruits and vegetables for snack items, such as potato chips, pretzels, salted popcorn, and salted nuts.

- Sodium is hidden in many processed foods. Watch your intake of canned and instant soups, processed cheeses, barbeque sauces, prepared horseradish, ketchup, and mustard. These foods are loaded with sodium!

- Read labels. Many foods that do not contain table salt or have a salty taste have lots of sodium. Check for words "soda" or "sodium" or the symbol "Na" on labels. Examples are sodium bicarbonate (baking soda), monosodium glutamate (flavor enhancer), sodium benzoate, sodium hydroxide, and sodium sulfate. Unfortunately, the amounts of sodium present in foods is not required to be placed on the label. Vitamin C supplements containing sodium ascorbate are another source of sodium.

## Teaching Aid 3

# POINTS TO PONDER ABOUT HERBS AND SPICES

• An easy way to reduce sodium in your diet is to flavor foods with herbs and spices instead of salt. Herbs are usually flavorful plant leaves and stems. Most spices are the roots, seeds, fruits, and barks of plants grown in the tropics.

• Many herbs are easily grown in kitchen windows or backyard gardens. These include: basil, dill, chives, mint, parsley, oregano, rosemary, sage, thyme, and savory.

• Herbs can be harvested at any stage of their growth; however, their strongest flavors occur when the oils are at their peak. For flowering herbs, strongest flavors occur when they are in bloom.

• Dried herbs have a stronger flavor than fresh ones. To dry herbs, hang them upside down in bunches, or spread the herbs over a wire screen which allows the air to circulate around them. After the herbs are completely dried, store them in airtight containers in a cool, dry place away from sunlight.

• The flavor of long-dried herbs can be revived by soaking them for 10 minutes in lemon juice.

• To enhance the flavor of the herb—crush, cut, or bruise the dried leaf with a mortar and pestle, wooden spoon and bowl, fingers, a knife, or a pair of scissors.

• When fresh herbs are substituted for dried herbs, use three times the amount of dried herb called for in the recipe.

• For uncooked foods, such as salad dressings, combine seasonings with other ingredients several hours in advance. This allows the flavors to develop fully.

• For slow-cooked foods, such as soup or stew, add the seasonings shortly before serving. This prevents the flavors of the herbs and spices from being steamed out.

## Teaching Aid 4

# FLAVOR WITH HERBS AND SPICES

| NAME | USES |
|---|---|
| **Spices** | |
| Allspice | Meat loaf, fish, stews, sweet vegetables, desserts |
| Caraway seed | Pasta, cabbage, bread |
| Cayenne pepper | Sauces, stews, meats, eggs |
| Chili powder | Meats, Mexican foods, eggs, poultry |
| Cinnamon | Fruits, desserts, breads |
| Cloves | Desserts, stew, ham |
| Curry | Poultry, rice, soups, dips |
| Ginger | Desserts, fruits, bread, fish, beef |
| Mustard | Sauces, dips |
| Nutmeg | Cakes, custards, fruits, fish, chicken |
| Paprika | Eggs, garnishes, meats |
| Pepper | Most foods except desserts |
| **Herbs** | |
| Basil | Pasta, salads, soups, tomato sauces |
| Bay leaf | Soups, stews, spaghetti, poultry |
| Dill | Fish, vegetables, dips, poultry |
| Mint | Lamb, vegetables, tea, desserts |
| Oregano | Italian food |
| Parsley | Eggs, vegetables, meats garnishes |
| Rosemary | Lamb, chicken, vegetables |
| Sage | Soup, stuffing, chicken, fish, pork |
| Tarragon | Vegetables, chicken |
| Thyme | Stews, soups, meats |

## Teaching Aid 5

# WHAT DO YOU KNOW ABOUT SODIUM?

**TRUE AND FALSE**

**Directions:** In Items 1-5, circle T if the statement is True. Circle F if the statement is False.

T F 1. Experts consider a sodium intake of approximately one-half to two teaspoons daily is safe for the average American.

T F 2. Excess sodium can be eliminated from the diet if a person simply does not add tables salt to the foods consumed.

T F 3. When using fresh herbs for seasoning, use three times the amount required of dried herbs to get the same flavor.

T F 4. If a food does not taste salty, it does not contain any sodium.

T F 5. Sodium chloride is the major source of sodium in processed foods.

**MULTIPLE CHOICE**

**Directions:** In Items 6-12, write the letter for the best response in the blank.

_____ 6. The functions of sodium in the body do *not* include
A. aiding in the absorption of minerals.
B. maintaining the body's temperature.
C. promoting the maintenance of nerves.
D. regulating the body's water balance.

_____ 7. A major health problem believed to be caused by excess sodium consumption is
A. arthritis.
B. hypertension.
C. obesity.
D. water retention.

_____ 8. Herbs which can be substituted for salt are taken from a plant's
A. bark.
B. flowers.
C. leaves.
D. roots.

_____ 9. Brian needs to cut down on the amount of salt he consumes. Which foods can he continue to eat?
A. Bologna, ham, sausage.
B. Canned soup, corned beef, cheese spread.
C. Pickles, olives, sauerkraut.
D. Vegetables, dried beans, nuts.

_____ 10. Cindy is preparing a beef stew which calls for dried oregano. What should she do to enhance the flavor of the herb?
A. Add it to meat after the meat has browned.
B. Crush, cut, or bruise it.
C. Saute it in oil.
D. Soak it in water.

_____ 11. Because of its ability to help circulate fluid around the body, sodium is classified as a(n)
A. electrolyte.
B. emulsifier.
C. enzyme.
D. hormone.

_____ 12. What percentage of Americans with high blood pressure can control it by reducing their sodium intake?
A. 20
B. 50
C. 65
D. 100

**MATCHING**

**Directions:** In Items 13-20, match each food with the level of sodium by writing the correct letter in the blank

| FOODS | SODIUM LEVELS |
|---|---|
| _____ 13. Apple | A. High |
| _____ 14. Bacon | B. Low |
| _____ 15. Broccoli | |
| _____ 16. Chicken | |
| _____ 17. Cottage cheese | |
| _____ 18. Dill pickles | |
| _____ 19. Instant soup | |
| _____ 20. Sardines | |

## Answer Key Teaching Aid 5

# WHAT DO YOU KNOW ABOUT SODIUM?

1. T
2. F
3. T
4. F
5. T
6. B
7. B
8. C
9. D
10. B
11. A
12. A
13. B
14. A
15. B
16. B
17. B
18. A
19. A
20. A

## Answer Key Student Activity 1

# WHERE IS THE SODIUM?[1]

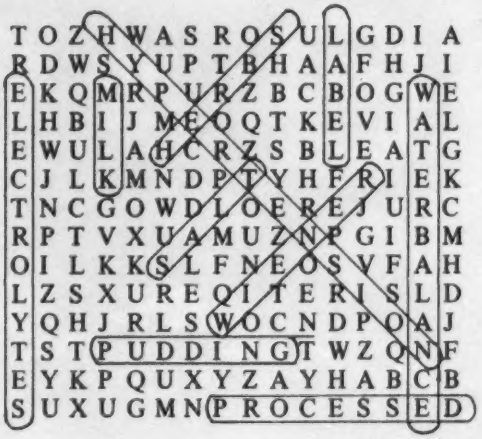
| FOODS | SODIUM CONTENT PER SERVING |
|---|---|
| 1. Canned soup | More than 800 mg |
| 2. Canned spaghetti in tomato sauce | 500-800 mg |
| 3. Corned beef | 500-800 mg |
| 4. Italian salad dressing | 500-800 mg |
| 5. Instant chocolate pudding | 400-450 mg |
| 6. Sweet pickles | 100-300 mg |

[1]Norge W. Jerome, Judith G. McCleery, and Isabel D. Wolf. "Help Yourself: Choices in Foods and Nutrition" (New York: Butterick Pub., 1981).

## Answer Key Student Activity 3

# WHAT ABOUT SODIUM?

**DIRECTIONS**
Find the words in this scramble that match the definitions below. Fill in the blanks following each definition with the correct word. It's a good way to find out what you know about sodium.


T O Z H W A S R O S U L G D I A
R D W S Y U P T B H A A F H J I
E K Q M R P U R Z B C B O G W E
L H B I J M E O Q T K E V I A L
E W U L A H C R Z S B L E A T G
C J L K M N D P T Y H F R I E K
T N C G O W D L O E R E J U R C
R P T V X U A M U Z N P G I B M
O I L K K S L F N E O S V F A H
L Z S X U R E Q I T E R I S L D
Y Q H J R L S W O C N D P O A J
T S T P U D D I N G T W Z Q N F
E Y K P Q U X Y Z A Y H A B C B
S U X U G M N P R O C E S S E D

1. Processed
2. Hypertension
3. Herbs
4. Electrolytes
5. Salt
6. Milk
7. Pudding
8. Water balance
9. Label
10. Weiner

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## Answer Key Student Activity 5

# FLAVOR FUN

**DIRECTIONS**
Unscramble the letters below to form fourteen words. Then place the circled letters in the blanks at the bottom of the page to find another important word. After all the words have been unscrambled, write a food beside each term which may be flavored with it.

| SCRAMBLED TERM | FLAVORING MATERIAL | FOOD TO BE FLAVORED |
|---|---|---|
| 1. MYHTE | THYME | Meats, soups |
| 2. RIGGEN | GINGER | Oriental foods |
| 3. MERROSAY | ROSEMARY | Sauces, poultry |
| 4. SLAIB | BASIL | Tomato, egg dishes |
| 5. FROSFAN | SAFFRON | Rice |
| 6. PRAPKIA | PAPRIKA | Meats, eggs |
| 7. NICAMNON | CINNAMON | Baked goods |
| 8. LIDL | DILL | Fish, pickles |
| 9. GESA | SAGE | Pork, cottage cheese |
| 10. SLAIPCLE | ALLSPICE | Eggnog, stews |
| 11. LICHI WODERP | CHILI POWDER | Meats, eggs |
| 12. SLEVOC | CLOVES | Ham, fruit drinks |
| 13. TEGNUM | NUTMEG | Eggnog, stews |
| 14. SRAMTUD | MUSTARD | Pork |

Mystery Words: HERBS AND SPICES

## Dietary Guideline 7:

# IF YOU CHOOSE TO DRINK, DO SO IN MODERATION[1]

**OBJECTIVES**

When students complete this lesson, they should be able to: Identify common teenage drinking attitudes and practices. Define a "drink." Explain why alcohol is said to supply "empty calories." Describe how the body absorbs and metabolizes alcohol. Explain the nutritional and health effects of alcohol consumption. Describe typical dietary habits of heavy drinkers and alcoholics. Explain what happens when alcohol is heated, and relate the results to food preparation. Describe the use of alcoholic beverages as a flavoring ingredients in food preparation. Demonstrate the nutritional and health effects of high alcohol consumption on laboratory animals. Present information on the use and abuse of alcohol. Prepare nonalcoholic beverages and nutritious (alcohol-absorbing) snacks. Choose to drink responsibly, if at all.

**RESOURCES**

| | |
|---|---|
| Teaching Aid 1: | Nutrient Content of Alcoholic Beverages |
| Teaching Aid 2: | How the Body Metabolizes Alcohol |
| Teaching Aid 3: | How Alcohol Affects the Body |
| Teaching Aid 4: | Points to Ponder About Alcohol Metabolism |
| Teaching Aid 5: | Points to Ponder About Alcohol |
| Teaching Aid 6: | Effects of Alcohol on Nutritional Status |
| Teaching Aid 7: | Alcohol–Deadly in Large Doses |
| Teaching Aid 8: | What Do You Know About Alcoholic Beverages? |
| Student Activity 1: | Student Survey on Drinking Attitudes and Practices |
| Student Activity 2: | What Is A Drink? |
| Student Activity 3: | Analysis of Alcoholic Beverages |
| Student Activity 4: | Alcohol and Nutrition Experiment |
| Media Resource 1: | NEWtrition 7 |
| Media Resource 2: | Eat Well, Be Well:<br>Hot Mulled Wine<br>Lowfat Wine and Cheese Sauce<br>Fish in Wine and Yogurt Sauce |

[1]Several activities in this section were adapted from SMILE: Student Myth-Information and Learning Experiences: An Alcohol Awareness Campaign (Austin, TX: Texas Commision on Alcoholism, 1981)

**KEY WORDS**

addictive
alcohol
alcohol absorption
alcohol abuse
alcohol calories
alcoholic hepatitis
alcoholism
alcohol metabolism
anemia
beer
cirrhosis of the liver
dehydration
delirium tremens (d.t.'s)
depressant
distilled spirits
diuretic
"drink"
dyspepsia
fetal alcohol syndrome
gastroenteritis
gout
neuritis
neurological disorders
peptic ulcer
proof
toxic
wine

**INTRODUCTION**

**Obtain permission to conduct a student survey on drinking attitudes and practices.** Work with classmates to develop the questionnaire for the survey. The information obtained from the survey will be useful as you study the nutritional implications of alcohol use. Answers to the survey should be anonymous to ensure confidentiality. Include such questions as the following: Do you drink alcoholic beverages? How old were you when you first started drinking (as opposed to tasting or sipping)? How often do you get intoxicated or drunk? Where do you usually drink alcoholic beverages? What foods do you typically eat before you drink? While you are drinking? Do you believe that the amount of alcohol you drink will have any long-term effects on your body? Do you ever choose nonalcoholic beverages when others around you are drinking alcoholic beverages? If so, what do you choose? What is the best way to "sober up" someone who has had enough alcohol to become drunk? What is the best cure for a hangover? Should a pregnant woman drink alcoholic beverages? Why? Do you know an adult whose health has been damaged by alcoholic beverages? [NOTE TO TEACHER: Reproduce sufficient copies of Student Activity 1: Student Survey on Drinking Attitudes and Practices or a survey developed by the class for use in polling the student body. If student information is too sensitive to obtain, national data is available from the National Clearinghouse on Alcohol Abuse, Rockville, MD 10852.]

**SUGGESTED ACTIVITIES**

- Ask five people you know to define a "drink." Share the definitions you obtained with your class. How does the definition of a drink vary? Did some persons refer to a drink only as distilled spirits and not as wine or beer? Did some persons consider the drink's color, name, where or how it's served, or what it's mixed with in their definitions? How does the amount of alcohol contained in a serving of the beverage aid in its definition? How do distilled, fermented, and brewed alcoholic beverages differ from one another? [NOTE TO TEACHER: In most studies, one drink means 0.5 ounces of absolute alcohol. Based on common types of alcohol sold, one drink would be defined as any one of the following: one jigger (1½ ozs.) of 80-proof distilled spirits; 1 oz. of 110-proof distilled spirits, one 12-oz. glass of regular beer; one 5-oz. glass of French wine; one 4-oz. glass of American wine; or 3 ozs. of sherry.] Use Student Activity 2: What Is A Drink?
- View a transparency to compare the nutrient content of four types of alcoholic beverages (See Teaching Aid 1: Nutrient Content of Alcoholic Beverages.) Then use a nutrition chart to locate the information on the number of calories in other alcoholic beverages. What factors influence the number of calories in a drink? Which has more calories, a tall drink or a short drink? What ingredients contribute extra calories to alcoholic beverages? Which alcoholic beverages have the fewest calories in one serving? How do the number of calories in various alcoholic beverages compare with those in nonalcoholic beverages? What nutrients are found in alcoholic beverages? What percentages of daily dietary requirements do these nutrients represent?
- View a transparency illustrating how the body absorbs alcohol. (See Teaching Aid 2: How the Body Metabolizes Alcohol.) Where is alcohol absorbed by the body? How does this differ from absorption of other nutrients and water? Is the body's use of alcohol more like that of fat, protein, or carbohydrates? How does eating something high in fat or protein affect alcohol absorption? Why do salty snack foods make a person drink more? How can one dilute the concentration of alcohol in drinks? Why are carbonated mixers a poor choice? Why is the alcohol in distilled spirits

absorbed more rapidly than that in wine or beer? How does sipping drinks slowly and spacing drinks an hour apart help to keep a person from getting drunk? Why does alcohol metabolism vary from person to person? Why is it important not to mix alcohol and drugs, including prescription and nonprescription drugs?

- View a transparency on typical effects on the body and brain of specific amounts of alcohol when consumed over a two-hour period. How many drinks are represented by each amount? What factors may vary the effects of alcohol consumption? At what amount does a person begin to lose control over his or her body? How might the person's size, physical health, mental state, and previous drinking experience influence the effects of alcohol? [NOTE TO TEACHER: Use Teaching Aid 4: Points to Ponder About Alcohol Metabolism to point out the effects of alcohol on the body.]
- Study references to find information about the effects of consuming large quantities of alcoholic beverages on the absorption of vitamins, the need for certain vitamins, and calorie intake. How does consuming large amounts of alcohol affect one's appetite? How is consumption of large amounts of alcohol related to the occurrence of accidents, liver disease, cancer, gastrointestinal injury, fetal development, and other conditions? [NOTE TO TEACHER: Refer to Teaching Aid 5: Points to Ponder About Alcohol, Teaching Aid 6: Effects of Alcohol on Nutritional Status, and Teaching Aid 7: Alcohol—Deadly in Large Doses to summarize the risks of high alcohol consumption.]
- Invite a nutritionist, dietitian, or medical doctor to discuss nutritional and health problems related to alcohol use and abuse. Discuss the effects of alcohol on calorie intake and vitamin absorption. What are "empty calories"? What nutrients do alcoholic beverages supply? What is the incidence of liver disease in your community? How many deaths occur each year from liver disease? What dietary treatment do alcoholics receive? How many hospital admissions each year are related to alcohol use or abuse?
- Invite a recovering alcoholic to share information on eating habits when a person is drinking heavily. What nutrition and health problems did the person encounter? [NOTE TO TEACHER: Local AA chapters are listed in most telephone directories. More than 100 cities in the United States also have offices of The National Council on Alcoholism, Inc.]
- Invite a representative from your local chapter of the March of Dimes to talk to your class about fetal alcohol syndrome. If your city does not have a local chapter of the March of Dimes, contact the regional office of the March of Dimes for information about fetal alcohol syndrome. [NOTE TO TEACHER: The regional office has a film and free literature on fetal alcohol syndrome. In Texas, write to Regional Program Coordinator, The National Foundation of the March of Dimes, 2527 Royal Lane, Suite 155, Dallas, Texas 75229; or phone 214-620-8450.]
- Conduct an alcohol and nutrition experiment using mice. Compare the amounts of food consumed by a group of mice injected subcutaneously with .5 cc of 40 percent ethyl alcohol daily, and a control group given no alcohol. Weigh and measure the mice weekly. Watch for any signs of nutritional deficiencies. After completing the experiment, return the mice to a nutritious diet for recovery. [NOTE TO TEACHER: Use Student Activity 3: Alcohol and Nutrition Experiment for recording results. You may want to enlist the aid of the biology teacher in conducting this experiment.]
- Locate and report to your class one of the following statistics: amounts and types of alcoholic beverages consumed by Americans in 1965 and 1980, the number of alcoholics in the United States, the number of alcoholic teenagers, or the number of accidents and illnesses believed related to heavy consumption of alcoholic beverages.
- Work in groups to research one of the following topics: How much liquor is sold in your community? Phone local wholesale distributors for this information. How many bars and restaurants in your community serve liquor? Obtain information from your state alcoholic beverage commission about the number of liquor licenses issued in your community? What facilities are available for taking care of alcoholics in your community? Contact the local health department for information. [NOTE TO TEACHER: If community information is too sensitive to obtain, national data is available from the National Clearinghouse on Alcohol Abuse, Rockville, MD 20852.]

- Develop a skit on nutrition and alcohol titled "The Price Is High." Base the skit on the TV game show "The Price Is Right." Include an emcee and contestants in the same manner that the TV show does. Set up a stage like a TV set with a screen between the contestants and the emcee. Include four contestants, Miss N. Formation, Miss I.M. Hipp, Mr. Tell-It-Right, and Ms. Smart Aleck. Develop questions about the nutritional effects of alcohol to be asked by the emcee. Develop answers for the contestants based on information frequently believed to be true about alcohol. Use an overhead projector to show the correct answers along with pictures, graphs, etc., as the contestants answer. The skit could include having contestants view a film in order to answer a question. [NOTE TO TEACHER: For information on a similar skit write: The Missouri Safety Center, Central Missouri State University, Warrensburg, MO 64093.]
- Sponsor a poster contest on nutrition and alcohol. Posters could tell of an FHA/HERO-sponsored alcohol abuse film show, a display in the library, a nonalcoholic alternatives tasting party, or other related events. A resource poster could have a pocket containing cookbooklets developed by the class.
- Consider the following facts: Alcohol boils at 78° C while water boils at 100° C. Given this information, what would happen to alcohol if heated to the boiling point of water? Based on your conclusion, why do you think flavoring materials which contain alcohol, such as extract of vanilla, are added to puddings and fillings after they have been cooked? Why do foods cooked with beer, wine, or liquor not cause intoxication?
- Participate in a foods lab to prepare nonalcoholic beverages and nutritious snacks. What types of snacks would slow the absorption of alcohol for persons who choose to drink? Use the foods prepared to conduct a taste-testing party sponsored by your local FHA/HERO chapter. During the party provide information on the nutritional effects of alcohol and recipes for nonalcoholic beverages and nutritious snacks.
- Develop a cookbooklet providing recipes and suggestions for nonalcoholic beverages and nutritious snack foods. The booklet might also include facts about the nutritional effects of alcohol, and the types of snacks which slow alcohol absorption for persons who choose to drink.
- View films illustrating ways alcoholic beverages can be used as seasonings. [NOTE TO TEACHER: Use Eat Well, Be Well: Lowfat Wine and Cheese Sauce and Fish in Wine and Yogurt Sauce.] Why are wines, herbs, and spices being substituted increasingly for salt in cooked foods? Study cookbooks to find recipes illustrating the use of wines, herbs, and spices as substitutes for salt.
- Study recipes which include alcohol as an ingredient. For persons who choose *not* to use alcohol in cooking, determine possible nonalcoholic substitutions for the liquid needed in each recipe. [NOTE TO TEACHER: Another liquid of appropriate flavor can be substituted for alcohol in most recipes. Possible substitutes include water, broth, bouillon, or apple juice. No appropriate substitute is available for recipes requiring the alcohol to be flambeed.]

## Teaching Aid 1

# NUTRIENT CONTENT OF ALCOHOLIC BEVERAGES

| Nutrient Content | Beer 12 oz | Whiskey Gin, Rum 1 Jigger 1½ fl oz* | Dry Wine 3½ oz | Sweet Wine 3½ oz |
|---|---|---|---|---|
| Calories | 150 | 97 | 87 | 141 |
| Alcohol Calories | 96 | 97 | 70 | 110 |
| Protein (g) | 1.1 | – | 0.1 | 0.1 |
| Fat (g) | – | – | – | – |
| Carbohydrates (g) | 13.7 | Trace | 4.3 | 7.9 |
| **Vitamins** | | | | |
| Thiamine (mg) | 0.01 | – | Trace | 0.01 |
| Niacin (mg) | 2.2 | – | 1.0 | 0.2 |
| Riboflavin (mg) | 0.11 | – | 0.01 | 0.02 |
| **Minerals** | | | | |
| Calcium (mg) | 18 | – | 9 | 9 |
| Iron (mg) | Trace | – | 0.4 | – |
| Potassium (mg) | 90 | – | 94 | 77 |

Teaching Aid 2

# HOW THE BODY METABOLIZES ALCOHOL

## ALCOHOL . . .

Depresses Central Nervous System

Diffuses Rapidly Throughout Body

Partly Absorbed from Stomach

Metabolized by the Liver at the Rate of 1 Drink per Hour

Reduces Nutrient Absorption

Affects Processes in Intestines

May Damage Liver, Stomach, Pancreas, Intestinal Tract

## Teaching Aid 3

# HOW ALCOHOL AFFECTS THE BODY[1]

| Amount of distilled spirits consumed in two hours | Typical effects on body and brain |
|---|---|
| 3 ozs | Release of tension; carefree sensation; loosening of judgment, thought and restraint |
| 4½ ozs | Tensions and inhibitions of everyday life lessened |
| 6 ozs | Voluntary motor action affected; hand and arm movements, walk, and speech clumsy |
| 10 ozs | Severe impairment; staggering, loud, incoherent, emotionally unstable, very drunk; 100 times greater-than-average traffic risk |
| 14 ozs | Deeper areas of brain affected; parts controlling response to stimuli and understanding stuporous |
| 18 ozs | Asleep, difficult to arouse; incapable of voluntary action, similar to surgical anesthesia |
| 22 ozs | Coma; anesthesia of centers of brain controlling breathing and heartbeat; death |

[1]From information furnished by the National Clearinghouse for Alcohol Information, as reproduced in Morris Chatetz, M.C., Why Drinking Can Be Good for You (New York: Stein & Day, 1976)

## Teaching Aid 4

# POINTS TO PONDER ABOUT ALCOHOL METABOLISM

• Primarily, alcohol is absorbed without need for prior digestion directly into the bloodstream from the stomach. Nonalcoholic mixers can help slow the effects of alcohol. However, carbonated drinks (soda, soft drinks, champagne) increase the speed with which alcohol is absorbed. Alcohol is also absorbed rapidly from an empty stomach. Food slows down the rate at which alcohol is absorbed into the bloodstream. Food also slows the rate at which people drink. However, salty snacks will increase thirst and the amount people drink.

• Alcohol absorbed into the bloodstream diffuses rapidly throughout the body. Alcohol is then found in different tissues in different amounts in proportion to the tissue's water content.

• Alcohol is a depressant which slows down all body functions. Alcohol has a narcotic effect. It puts the brain to sleep, starting with the frontal lobe, or reasoning portion. The apparent stimulation associated with a few drinks is a reflection of the fact that this frontal lobe is the part of the brain that controls your behavior. With alcohol, that control is loosened. This explains why alcohol frees the tongue, increases aggression, and releases inhibition. Small amounts of alcohol may also cover up fatique and give a temporary feeling of well-being.

• As the amount of alcohol increases, the numbness produced moves to the brain's speech and vision centers while the frontal lobe is further drugged. At still larger doses, alcohol affects the part of the brain that controls the voluntary muscles, producing the staggering gait we associate with being drunk. If enough alcohol is consumed in a very short time, brain function can become so depressed that coma and death follow.

• Alcohol increases the flow of gastric juices in the stomach. If food is not present to be digested, these stomach acids destroy the mucous lining of the stomach. As a result, excessive drinkers often suffer from irritation of the stomach lining, indigestion, or dyspepsia (incomplete digestion).

• The liver works to neutralize the effects of alcohol upon the body by breaking down the alcohol into harmless substances. However, the liver cannot handle large amounts of alcohol. It is the only organ in the body which can metabolize alcohol. If no more than one drink per hour is consumed, and if there is food in the stomach, the liver can metabolize the alcohol effectively. If more than one drink per hour is consumed, the liver becomes overworked and must compensate by increasing its tolerance for alcohol. In addition, alcohol must be metabolized first, before the liver can perform its regular duty of changing fats to energy. After a time, the liver becomes fatty and is less able to decompose alcohol. As a result, the liver develops a decreased tolerance for alcohol and less alcohol is needed to produce intoxication. As drinking continues over a period of time, the liver cells die and are replaced with scar tissues or fat. This condition is known as cirrhosis of the liver.

• Alcohol is not a fat, carbohydrate, or protein, although it can be burned for energy like a carbohydrate. Pure alcohol has almost twice the calories per ounce as do proteins, starches, or sugars. Alcoholic beverages supply little to the diet except calories.

• Alcohol reduces the efficiency of digestion, absorption, and metabolism. As a result, nutrient deficiences may result.

## Teaching Aid 5

# POINTS TO PONDER ABOUT ALCOHOL

• Alcohol is both a food and a drug. Alcohol is considered a food because it supplies energy, about 112 calories per one and one-half ounces of 86 proof alcohol. Some alcoholic beverages, such as beer or wine, also contain minute quantities of other ingredients, including carbohydrates, proteins, minerals, and vitamins.

• Alcoholic beverages are high in calories, but low in nutrients. Alcohol is included in the fifth food group, Fats, Sweets, and Alcohol, recently added to the Daily Food Guide by the United States Department of Agriculture. Because this group contributes little to the diet except calories, no recommended daily number of servings was established.

• Many common foods and medicines contain small amounts of alcohol. Flavoring extracts, like vanilla, contain alcohol. Unless misused, these sources contribute only small amounts of alcohol to the diet. Liquid forms of cough medicines, cold cures, diarrhea remedies, painkillers, and vitamins all may contain alcohol.

• The alcohol used in cooked foods evaporates rapidly when cooking temperatures exceed 78° C (172° F), the boiling point of alcohol; and its intoxicating effects dissipate as well at those temperatures.

• The most commonly used addictive drug in the United States is alcohol, which is both toxic and addictive. Alcohol is especially toxic to the brain, heart, liver, and gastrointestinal tract.

• In 1975 alcohol contributed an estimated average of 210 calories a day to an American's diet, about 5 to 10 percent of the total daily caloric intake. For heavy drinkers, it has been estimated that alcohol contributes over 50 percent of their total caloric intake.

• Alcohol may increase the appetite and contribute to obesity. Drinking before meals generally increases the appetite. If done over a period of time, overweight results. Not only is more food consumed, but the alcohol itself is high in calories. A majority of moderate drinkers add alcohol calories to an adequate daily food intake.

• Alcohol can decrease the appetite also. Increased appetite is not the case for advanced alcoholics. For them, alcohol may depress the appetite with nutrient deficiencies resulting. People who drink heavily tend to eat inadequately, thus depriving themselves of nutrients essential for health.

• Alcohol can cause dehydration. One estimate is that the body needs 240 ml (8 oz.) of water to manage every 30 ml (102 oz) of alcohol consumed. Because alcohol is a diuretic, it increases the output of urine, thus increasing the output of water. As a result the body loses important water-soluble minerals, such as potassium and magnesium which are needed by the nervous system. This can cause trembling and shaking. Alcohol destroys brain cells by withdrawing necessary water from them and dissolving the lipid (myelin) layer of nerve cells.

•Alcohol reduces the efficiency of digestion, absorption, and metabolism. As a result, nutrient deficiencies may result. Alcoholics often have a deficiency of B-vitamins, especially thiamine, which may result in beriberi. Anemia may result from the lack of folic acid. A deficiency of vitamin A can result in night blindness. Lack of zinc will result in loss of taste sensitivity and appetite. Lack of magnesium causes delirium tremens, known as d.t.'s. Shortages of protein, vitamin C, and potassium may also occur.

•Excessive alcohol consumption also contributes to headaches, cancer (especially in smokers), gastrointestinal injury, insomnia, gout, and pneumonia. Alcohol in large doses can diminish the body's ability to fight infection. Avoidance of alcoholic beverages is an important part of the treatment of many diseases.

•Alcohol contributes to growth abnormalties know as fetal alcohol syndrome. Some evidence indicates that as little as two drinks a day while a mother is pregnant can increase the risk of having a child with birth defects. Alcohol travels from the mother's body through the placenta to the unborn baby. Use of alcohol by the mother is most dangerous during the first three months of pregnancy since alcohol use then can cause brain damage to the unborn baby. Poor growth before and after birth is one of the most prominent symptoms, and may be related to the fact that heavy drinkers often have a lower food intake. Other signs are small brain size, mental retardation, and certain physical characteristics, such as a low, broad nasal bridge; a long convex upper lip; increased eye folds; small nails; and limited joint movement. Evidence shows that children with fetal alcohol syndrome never achieve normal height, weight, or intelligence.

•Over a period of time, large doses of alcohol can be physically destructive, reducing a person's life span 10-12 years. Alcohol, malnutrition, lowered resistance, and self-neglect often form the nucleus for developing chronic illness. Persons with a history of alcoholism have an overall death rate two and one-half to three times the national average.

[1]From "Alcohol and Its Effects on Nutrition, Health, and Safety," TIPS AND TOPICS in Home Economics (Winter 1982).

## Teaching Aid 6

# EFFECTS OF ALCOHOL ON NUTRITIONAL STATUS[1]

| | | |
|---|---|---|
| Depresses appetite → | Too few nutrients → | Malnutrition<br>Nutrient deficiencies |
| Increases appetite → | Too many calories → | Malnutrition<br>Overweight/Obesity |
| Toxic effects on liver, stomach, pancreas, intestines, and other organs → | Reduced efficiency of digestion, absorption metabolism → | Malnutrition<br>Nutrient deficiencies with increased triglyceride production* |

*Dietary fat is broken down into molecules of triglycerides. Triglycerides are fatty substances which promote clogging of arteries.

[1]From Dorothy A. Wenck, Martin Baren, and Paul Sat, **Nutrition: The Challenge of Being Well-Nourished** (Reston, VA 1980)

## Teaching Aid 7

# ALCOHOL–DEADLY IN LARGE DOSES

**ALCOHOL MAY DAMAGE**

Intestinal tract
Liver
Pancreas
Stomach

**ALCOHOL INCREASES RISK OF**

Alcoholic hepatitis
Automobile accidents
Birth defects
Cancer
Cirrhosis of the liver
Coronary heart disease
Diabetes
Dyspepsia (incomplete digestion)
Gastritis (irritation or inflammation of the mucus lining of the stomach)
Gastroenteritis (stomach flu)
Gout (excessively high uric acid in blood with deposits of uric acid salts in tissue around the joints)
Neuritis
Neurological disorders
Obesity
Pneumonia
Seizures (in epileptics)

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## Teaching Aid 8

# WHAT DO YOU KNOW ABOUT ALCOHOLIC BEVERAGES?

**TRUE AND FALSE**

**Directions:** For Items 1-5, circle T if the statement is True. Circle F if the statement is False.

T F 1. For the average person, drinking an alcoholic beverage before meals will cause a decrease in appetite.

T F 2. Ounce per ounce, beer contains fewer calories than most other alcoholic beverages.

T F 3. A food that is cooked with alcohol as a flavoring can cause intoxication.

T F 4. When a pregnant woman consumes as little as three alcoholic drinks per day, she avoids the risk of fetal alcohol syndrome.

T F 5. Generally, alcohol is metabolized efficiently by the liver if no more than one drink per hour is consumed.

**MULTIPLE CHOICE**

**Directions:** For Items 6-15, write the letter for the best response in the blank.

_____ 6. Which part of the digestive system breaks alcohol down so that it can be used by the body?
A. Large intestine
B. Liver
C. Stomach
D. Small intestine

_____ 7. What amount of distilled alcohol is required to affect the average person's movement and speech enough to make them clumsy or slightly drunk?
A. 2 oz.
B. 4 oz.
C. 6 oz.
D. 10 oz.

_____ 8. Certain mixers can help to slow the absorption of alcohol into the bloodstream. Which of the following will *not* slow absorption?
A. Carbonated beverages
B. Orange juice
C. Tomato juice
D. Water

_____ 9. What occurs if a person consumes an alcoholic beverage when there is no food in the stomach?
A. Alcohol is converted to glycogen and stored in the liver.
B. The beverage must be digested before alcohol is absorbed.
C. Stomach acids destroy the mucus lining of the stomach.
D. Utilization of nutrients will be delayed.

_____ 10. Alcohol provides energy similiar to that provided by
A. carbohydrates.
B. minerals.
C. proteins.
D. vitamins.

_____ 11. Which of the following will *not* result from excessive alcohol consumption?
A. Dehydration.
B. Loss of taste sensitivity.
C. Increase in dyspepsia.
D. Excess tension in voluntary muscles.

_____ 12. People who drink excessively lose important water-soluble vitamins and minerals and suffer destruction of brain cells because alcohol is a
A. depressant.
B. diuretic.
C. drug.
D. toxin.

_____ 13. Although alcoholic beverages supply more calories than nutrients, one alcoholic beverage contains more nutrients than the others. Which is it?
A. Beer
B. Dry Wine
C. Distilled spirits
D. Sweet wine

_____ 14. An alcohol-related disease in which healthy cells are replaced by scar tissue or fat is
A. cirrhosis of the liver.
B. dyspepsia.
C. hepatitis.
D. peptic ulcer.

_____ 15. Which of the following will *not* help people from becoming intoxicated at a party where alcoholic beverages are served?
A. Closing the bar about 30 minutes before the party is over.
B. Providing peanuts, pretzels, and popcorn for snacks.
C. Serving a meal along with the drinks.
D. Using water, orange juice, and tomato juice as mixers.

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## MATCHING

**Directions:** Alcohol reduces the efficiency of digestion, nutrient absorption, and metabolism. As a result, nutrient deficiencies may occur. For Items 16-20, match the alcohol-related disease with the deficient nutrient by writing the correct letter in the blank.

| DISEASES | NUTRIENTS |
|---|---|
| _____ 16. Anemia | A. B vitamins |
| _____ 17. Beriberi | B. Calcium |
| _____ 18. Delirium tremens | C. Folic acid |
| _____ 19. Night blindness | D. Magnesium |
| _____ 20. Scurvy | E. Vitamin A |
| | F. Vitamin C |

## Answer Key Teaching Aid 8

# WHAT DO YOU KNOW ABOUT ALCOHOLIC BEVERAGES?

1. F
2. T
3. F
4. F
5. T
6. B
7. C
8. A
9. C
10. A
11. D
12. B
13. A
14. A
15. B
16. C
17. A
18. D
19. E
20. B

# MEDIA RESOURCES

**SOURCE**
Department EW
Health and Safety Education Division
Metropolitan Life Insurance Company
One Madison Avenue
New York, NY 10010
OR
Journal Films, Inc.
930 Pitner Avenue
Evanston, IL 60202

**RESOURCE**
**Eat Well, Be Well,** a self-contained four-part video program (color, approx. 120 min.). Based on the Seven Dietary Guidelines for Americans. Each part contains six or seven segments (each 4½ min. long) that review one or more of the guidelines while demonstrating the preparation of a related dish.
Price: Complete four-part series, $600; each part, $175; anthology version which recaps information contained in the four-part series, $175. Available in ¾-in. U-Matic, ½-in. VHS and ½-in. Beta. Discussion guide included. Write for descriptive brochure on preview/rental/purchase information.

**SOURCE**
The Learning Seed Company
21250 Andover
Kildeer, IL 60047

**RESOURCES**
**Fast Food: A Nutrition Survival Guide,** a filmstrip in which viewers tour the menus at various types of fast food franchises in search of the balanced meal.
Price: One filmstrip with cassette, black line master, and teaching guid $28.00

**The Instant Energy, Sugar Coated, Fast Food Nutrition Kit,** three filmstrips which look at the problem of snacks, the difficulty of maintaining a balanced diet while eating out, and dangers of eating patterns that have become standard. Kit includes "Confessions of a Junk Food Junkie," a sound filmstrip; "Dietary Goals," a filmstrip; "Nutri-Test: Exercise in Food Choices," a silent filmstrip; "Personal Diet Analysis," a 32-page book (6 copies); "Brand Name Nutrition Counter," a 250-page paperback.
Price: Complete kit, $64.00

**Salt: Sodium in Daily Diets,** a kit providing information on the sodium controversy, information on sodium levels in common foods, and guidelines for constructing a diet that avoids excess sodium. Kit includes one sound filmstrip; "The Sodium Content of Your Food," a 36-page reference book; and "Salt Shaker Sanity," a black line master.
Price: Complete kit, $28.00

**Snacks: The Food You Hate to Love**, a kit which suggests nutritious alternatives to common snacks. Kit includes two sound filmstrips with cassettes, 35 copies of the "Snackers Digest" poster, and a teaching guide.
Price: Complete kit, $58.00

**Winning the Grocery Game: Language and the Supermarket**, a kit which examines the environment of the grocery store as a persuasion tactic and demonstrates how to use labels to determine which brands are superior, which foods to avoid, and which are simply clever ways of selling inexpensive ingredients at high prices. Kit includes two color sound filmstrips, "The Grocery Game"; a silent filmstrip, "Supermarket Survival Test"; a scavenger hunt; a research activity; a Dictionary of Food Additives (2 pages); and "Eater's Digest," a 260-page paperback.
Price: Complete kit, $61.00

**SOURCE**
The Polished Apple
3742 Seahorn Drive
Malibu, CA 90265

**RESOURCE**
**NEWtrition 7**, a futuristic-style filmstrip that summarizes the seven Dietary Guidelines.
Price: Filmstrip and cassette, $44.75

**SOURCE**
Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

**RESOURCE**
**Food**, a 65-page book on the five food groups comprising the USDA's Daily Food Guide. Also includes information on cutting calories, and answers to questions about sugar, fat, sodium, and fiber. Suggestions are given on planning breakfasts and snacks. Recipes in each food group are provided.
Price: $5.50

**Nutrition and Your Health, Dietary Guidelines for Americans**, a 19-page booklet summarizing the seven dietary guidelines. (Home and Garden Bulletin No. 232).
Price: Free